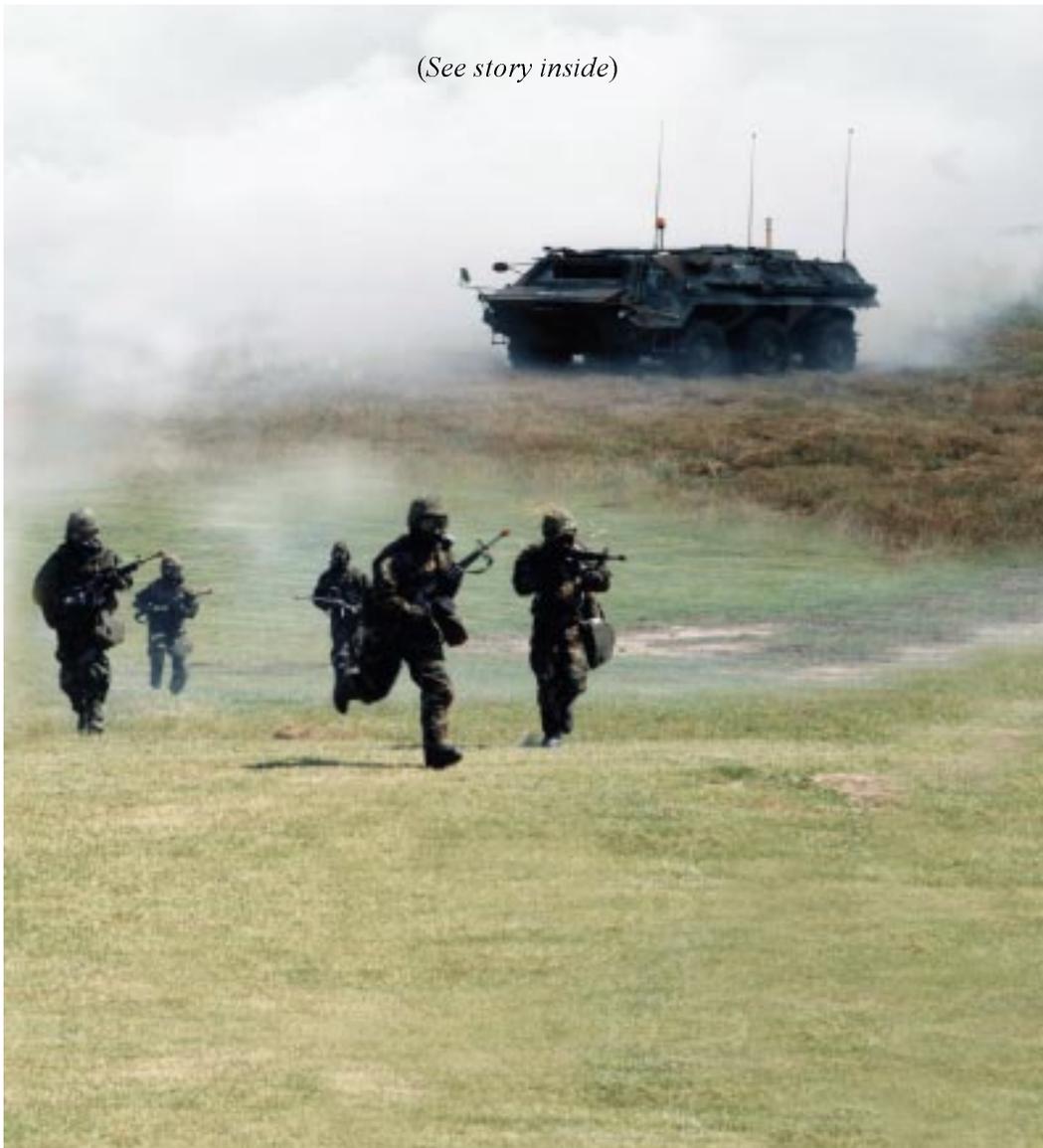




## SBCCOM-NDIA SPONSORS FIRST

### Department of Defense Nuclear, Biological & Chemical Symposium & Exhibition

*(See story inside)*



*U.S. Army Photos by Conrad Johnson,  
electronically enhanced by Kathleen Zubey*

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This journal is distributed to over 900 addressees throughout the Joint Services, industry, and academic R&D community and would be a good vehicle to publicize what is going on where you are. Please submit articles to Technical Director, Edgewood Chemical Biological Center, ATTN: AMSSB-RAS-C, Aberdeen Proving Ground, MD 21010-5424, or by electronic mail to the Corporate Enhancement Team at [cet@sbccom.apgea.army.mil](mailto:cet@sbccom.apgea.army.mil). All submissions are accepted at the discretion of the editor and are subject to editing. This journal is prepared for publication by the Corporate Enhancement Team:

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## SBCCOM'S FIRST NUCLEAR, BIOLOGICAL AND CHEMICAL SYMPOSIUM & EXHIBITION

**T**he first NBC Symposium, held in June, encompassed parts of the Joint Service Chemical Biological Advance Planning Briefing for Industry (APBI), Worldwide Chemical Conference, and Independent R&D Conference on CB Science and Technology.

The keynote speakers were Dr. Bernard Rostker, Under Secretary of the Army, and BG James Feigley, Commander, Marine Corps Systems Command. In addition to the briefings, the APBI attendees were able to tour six of Edgewood's most unique laboratories and facilities. The APBI presentations (in PowerPoint format) are available on our web site at: <http://www.sbccom.apgea.army.mil/RDA/apbi/index.html>. The point of contact for the APBI portion of the symposium is Mr. Ronald P. Hinkle, Commercial (410) 436-2031, DSN 584-2031, or email [ronald.hinkle@sbccom.apgea.army.mil](mailto:ronald.hinkle@sbccom.apgea.army.mil)



**KEYNOTES:** BG James Feigley (left), Commander, Marine Corps Systems Command, and Dr. Bernard Rostker, Undersecretary of the Army, set the tone for the *Advanced Planning Briefing for Industry* in June.

The Independent Research & Development Conference was held on June 24<sup>th</sup>. Four panels of government experts received a total of 18 company presentations describing their internally funded research and development programs as they relate to CB defense. The four panels addressed the areas of Biodetection, Chemical Detection, Protection, and Decontamination/ Demilitarization.

There was an extensive exhibit area available for over 80 contractors and other government agencies to display their latest technologies and products. These exhibits were housed in the Command's Gunpowder Club and the area surrounding the Club.



*Vaughn Guy, Business Development Manager for Chem-Bio Systems, shows off a new product from his company, Computing Device Canada Ltd, a General Dynamics Company.*



*Joint JBREWS Effort: LTC Don Buley, Deputy for Detection at the Joint Program Office for Biological Defense; Mike Abaie of PM Naval Surface Warfare Center, and Nicole Trudel of Chamber Corp show off the Joint Biological Remote Early Warning System (JBREWS).*



**Joint Team** (from left): LTC Mark Grotke (JPO Bio), Bob Goebel (Lockheed Martin), Don Hohe (Battelle), and Joe Cartelli (JPO Bio).

Also on June 24<sup>th</sup>, MG John Doesburg, SBCCOM Commander, led a VIP tour of Edgewood facilities to several high-ranking DoD officials as well as state and local politicians. They received the Command overview, then visited the Biological Integrated Detection System production line, Fly-Away Laboratory, CB Rapid Response Team, Technical Escort Unit Equipment Display, and Bioprocess Engineering Facility.

A Key Leaders Conference was held on June 24<sup>th</sup> and 25<sup>th</sup>. This conference focused on the state of the Chemical Corps and CB doctrine and requirements.



*MG John Doesburg (second from left), SBCCOM Commander, hosted (from left) MG Ralph Wooten, Commandant of the Army Chemical School; BG Eddie Cain, Joint Program Manager for Biological Defense; and COL(P) Yogi Mangual, SBCCOM Deputy for Readiness and Acquisition.*



**Partners for the Soldier:** Gloria Barrett from PM soldier, Fort Belvoir, and Rick Decker, team leader for the Joint Service General Purpose Mask, PM NBC Defense Systems, joined forces at the Tuesday evening reception to discuss their related R&D program.

The traditional **Green Dragon Ball** was held the evening of June 25<sup>th</sup>.



**Enjoying the Edgewood Summer Evening:** Pierre Ricaud, retired French Army General and BG(Ret) Peter Hidalgo, former commander at Edgewood, renewed their friendship during the evening reception. Both played key roles in Franco American CB R&D.



*"The Future of NBC Defense Starts Here" could have been the symposium theme, as more than 800 people converged to participate in the event.*



*"We did it!" Dave Labar, symposium coordinator, Roy Albert, exhibit coordinator, and MG John Doesburg, SBCCOM Commander, take a break and smile at "pulling off" a first-class symposium.*

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## MEMORANDUM OF AGREEMENT SIGNED

**T**he PM-NBCDS and PM-Soldier have entered into an agreement on 9 July 1999 with the signing of a Memorandum of Agreement (MOA).

The primary objective of this MOA is to ensure that the PMs make mutually acceptable acquisition decisions on concurrent developmental and production items and provide expert advice to Joint Service program teams that also result in mutually acceptable decisions by the lead service for materiel development. This agreement will enable both PMs to leverage the experience, expertise, and technological capabilities of each other's product line resources to produce a fully capable and fully integrated cost-effective material solution to a warfighters' need. This MOA applies to all Individual and Crew-Served Protection and Detection Equipment under the charter responsibility of PM-NBCDS and PM-Soldier that must have a compatibility interface with each other either physically or functionally. For example, Chemical Biological (CB) masks and laser eye protection, clothing, helmets, and helmet targeting and sighting systems, individual agent detectors and clothing. Examples of other equipment might include: Air Warrior, Joint Chemical Agent Detector, Ballistic Spectacles, Interceptor, Light Weight Low Profile Voice Amplifier, Low Profile Flotation Collar, and, Modular Lightweight Load-carrying Equipment. Items not interfacing are not excluded from this agreement but are not mandatory to be included. Examples are boots, food items and non-CB clothing and equipment.

A primary mission of the SBCCOM RDA Enterprise is to provide total life cycle management of Soldier and CB technology, products and services to ensure combat overmatch for the US Armed Forces. The mission of the PM-NBCDS is to provide centralized leadership and management to develop, produce and field CB defense systems within cost, schedule and performance. One of the missions of the PM-Soldier is to integrate individual soldier systems

developed by various PMs into an operationally effective system. With these two missions so closely intertwined, it is our mutual benefit, and in fact our responsibility, to coordinate our efforts. This MOA establishes the framework for our cooperative efforts.

This MOA describes the relationship and establishes policy and procedures between PM-NBCDS and PM-Soldier for coordination of Research, Development, Test and Evaluation and Acquisition of Individual and Crew Served Protection and Detection Equipment. Specific projects, such as the Joint Service General Purpose Mask (JSGPM), Soldier Enhancement Program, and Land Warrior shall have an Annex for each project that complies with the framework and intent of the MOA. The specific project Annex to the MOA shall identify at a minimum, the scope of the project, each organization's responsibilities which includes tasks, funding, reporting requirements and the POC information. All projects will be executed and managed in accordance with the authorities and responsibilities of their mission and charters.

Although each project is different and will have its uniqueness, the concept of operation to accomplish the objective of the MOA is to have the System Managers in PM-NBCDS and PM-Soldier for each project:

- Provide each other Mission Need Statements, Operational Requirements Documents, Performance Specifications and Test and Evaluation Master Plans for review and comment.

- Appoint a member of each others Project Office as a member of the Management sub-Integrated Product Team (IPT) and/or other sub-IPTs as needed, such as Test IPT for concurrent testing.

- Participate in; preparation and review of requests for proposal, source selection evaluation team, and associated contractual activities, i.e. Pre-solicitation conference, start of work conference.

- Provide advance notice of schedules meetings and major program events such as Program Reviews, Design Reviews, Test Working Groups, Testing, IPT meetings etc. to allow active participation by each project office.

- Provide notification of program major changes i.e. schedule slips more than 3 months, performance shortfalls (failure to meet threshold or objective criteria), design configuration changes, technical requirements changes that could impact compatibility and interfaces with each others equipment.

- Participate in the establishment of mutually acceptable Critical Operational Issues and Criteria for interfacing equipment.

- Provide documentation, technical support and prototypes to conduct concurrent (whenever possible) Developmental and Operational Testing of interfacing equipment.

- On programs where the Army is not the lead service for materiel development, provide expert advice to the lead service to assure that mutually acceptable decisions are made for proper interfacing and compatibility with Army equipment, procedures, and tactics.

The first annex to be drafted under this MOA is the JSGPM program followed by the Land Warrior M45 program.

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## U.S. CUSTOMS SERVICE INTERAGENCY AGREEMENT

**A**n Interagency Agreement (IAA) with the U.S. Customs Service has been approved. The purpose of the IAA is to prepare and produce a distance learning -satellite broadcast proving instruction to U.S. customs personnel in the area of chemical and biological weapons of mass destruction. Effort will include a trip on 19 April to meet and discuss requirements with Customs agents at the Baltimore Washington International Airport and the Port of Baltimore. Advanced Concepts Requirements and Research, Development and Acquisition Domain simulation to evaluate equipment needs for a future military combat organization.

A beta version of the Harford Mall Domestic Preparedness video tape is being copied and portions will be used by U.S. Customs as an introduction to the live satellite broadcast we are producing. Additionally the introduction will include a message from Commissioner Kelly. The purpose of the IAA is to prepare and produce a distance learning-satellite broadcast proving instruction to U.S. customs personnel in the area of chemical and biological weapons of mass destruction.

POC: Mr. Keith Knight, New Business Development, Commercial (410) 436-2621, DSN 5 8 4 - 2 6 2 1 , o r e m a i l [keith.knight@sbccom.apgea.army.mil](mailto:keith.knight@sbccom.apgea.army.mil)



## BIOLOGICAL AEROSOL WARNING SYSTEM (BAWS)

The U.S. Army Soldier and Biological Chemical Command (SBCCOM) has developed a Biological Aerosol Warning System (BAWS) which employs a 2-Tiered state-of-the art lightweight, remote, battery/vehicle-powered network of sensors rf-linked to a central base station. Displayed at the central base station are the GPS-positions of each sensor, its alarm status, and the current meteorological conditions.

Tier I sensors comprise a network of highly sophisticated remote aerosol particle counters with on-board GPS, windspeed, and wind-direction indicators, full-duplex telemetry, sampling and data-handling. They provide the capability of alerting to a sudden high increase in particle concentration over a small area such as that expected from a close-in biological attack (rockets, missiles, bomblets). Current size/weight/power parameters are: 0.24 cu.ft., 9-lbs, 8.44W.



Tier II sensors comprise a field add-on unit that employs sophisticated 3-channel UV-aerosol particle identifiers designed to detect, in high ambient backgrounds, lower agent-particle concentrations (< 20 particles/liter) such as those expected in a large area biological attack (UAV, aircraft, speedboat). They also serve the secondary mission of an unmasking indicator. Current Tier II size/weight/power parameters are 0.8 cu.ft., 18-lbs, 30W.

Also integrated into the Tier I BAWS unit is a built-in interface for the ACADA (Automated Chemical Agent Detector and Alarm) chemical sensor. A secondary on-board sampling system on the BAWS sensors can also be remotely activated to physically capture a biological (or chemical) aerosol sample. This sample is available for manual transport to a battlefield laboratory for confirmation by the National Command Authority.

These capabilities of the BAWS system were demonstrated during a series of pilot tests at Dugway Proving Ground (DPG), UT, in March 1999. In addition to detecting and alarming at the onset of biological aerosol clouds, two trials demonstrated the ability of the BAWS to remotely transmit a chemical agent detector alarm to the BAWS central base station. This was accomplished with an ACADA Chemical Agent Detector interfaced to a remote Tier I BAWS unit and exposing the unit to chemical simulant vapor challenges. A formal NBC-1 Report was transmitted from the central base station via an Applique/SINGARS link to a remote Applique/SINGARS/Phoenix workstation.

Participants in these tests included the Advanced Technology Demonstration (ATD) team, representatives from DPG, the Army Maneuver Support Battle Laboratory, OPTEC, Armed Forces Institute of Pathology, MIT-Lincoln Laboratory, Lockheed-Martin Librascope, and ITT/Kaman.

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## CHEMICAL DETECTION ON MOBILE AND ARMORED VEHICLES

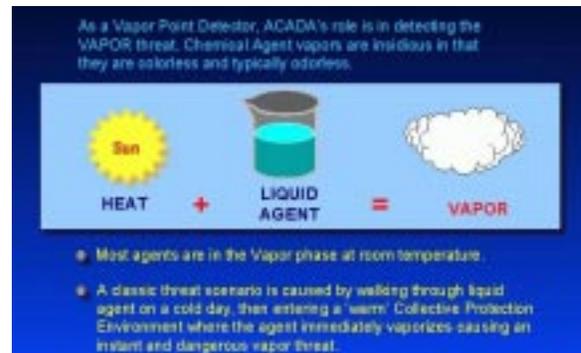
The use of Chemical Warfare agents continues to be a viable threat to U.S. Forces. In an interview for the United States Navy Surface Warfare Magazine, Major General Wooten, Commandant of the U.S. Army Chemical School stated “The chemical/biological threat is real, more so than the nuclear threat right now. Before the demise of the Soviet Union, we believed the chemical/biological threat was contained. But when “the wall” crumbled, there was no more central control; chemical/biological weapons and weapon delivery systems proliferated. Intelligence estimates 25-27 countries have either chemical or biological weapons.”\*

Chemical agents have been called the “poor man’s nuclear weapon.” The manufacture of chemical warfare agents in small quantities by terrorists is an ongoing threat, but the manufacture and use of military quantities of chemical warfare agents for delivery against U.S. Forces during military missions is always a potential. The delivery of chemical weapons against our ground and mechanized forces could cause disruption of communications and a degradation of command and control. There are numerous defense strategies for countering these threats and the newest tool in ameliorating the tactical effects of chemical agents is the M22 Automatic Chemical Agent Alarm, ACADA.



The M22 ACADA is the Joint Services most advanced chemical agent detector. It is a point detector which is capable of quickly warning our troops that a chemical attack has occurred or that our forces have

traversed a chemically contaminated area. Chemical agents are colorless and in many cases odorless chemicals, which at very low concentration, can cause incapacitation and lethal effects on personnel.



With sufficient warning, military personnel can take protective measures to reduce the chances of inhaling these chemical warfare agents, thereby preventing or reducing casualties. The M22 ACADA, when employed properly, will provide this warning capability. The M22 simultaneously senses vapors of Nerve and Blister agents and provides an alarm. It is programmable for other threat agents. The detector is highly resistive to interferences. The M22 system consists of the M88 detector, transit case, removable battery pack and M42 remote alarm unit. Auxiliary equipment includes the M28 power supply and M281 vehicle mount with an M42 mounting bracket.

M22 is designed for three operational roles. These roles include area warning, monitoring collective protective equipment (CPE), and operation on and in vehicles.

- In the area warning role, the M22 is employed up to 400 meters upwind and is operated by a battery pack.

\*Surface Warfare Magazine, November/December 1996, “The Battle of NBC,” p. 16.

- The hard wired M42 alarm unit is emplaced with the troops to be alerted. Once operational, set-up and break-down times are typically a few minutes, making the system highly mobile for changing tactical situations.

- In the CPE monitoring role, the M88 detector is used with the M28 power supply to allow long-term monitoring of the air. This operational role will indicate if the “clean” environment has been breached by incoming contaminated personnel or equipment or if the chemical filters have failed.



In the vehicular role, the M88 detector is used with the M281 vehicle mount and powered from vehicle power. In this application, the M88 detector can be installed at an appropriate location on the exterior or interior of the vehicle. Both applications require the M281 vehicle mount, which provides vibration and shock isolation for the detector. The M42 is connected to the M88 alarm and located near crew members to provide an audible and visual alarm. The M88 is the detector used with the Multi-Purpose Integrated Chemical Agent Alarm (MICAD) system. The MICAD system is used for communication to the immediate crew and surrounding command and control units that a chemical agent has been detected in or around a particular vehicle. The M88 detector is easily removed from the M281 vehicle mount to allow for area warning around the vehicle.

The M22 system is the most extensively tested chemical detector fielded to U.S. Forces. The 2-year test program included all military environmental and intended operational roles. Test conditions included operation at temperature extremes of  $-30\text{ }^{\circ}\text{C}$  to  $+55\text{ }^{\circ}\text{C}$ , rain, dust, salt spray, and electro-magnetic interference including high altitude electro-magnetic pulse. Extensive vehicular tests were conducted at the Test and Evaluation Command test sites in Alaska, Panama,

Yuma, and Aberdeen. The detectors were mounted on the exterior of the vehicles to demonstrate reliability and survivability.

In the Arctic, the Small Unit Support Vehicle (SUSV) and High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) were tested at temperatures down to  $-45\text{ }^{\circ}\text{C}$  and were driven a total of 200 vehicular miles.

At the Tropic Test Center, the M22 was mounted on the HMMWV and operated in driving rain and in tropic conditions for a total of 1,182 vehicular miles.

At the Desert Test Center, the M22 was mounted on the M113 Armored Personnel Carrier (APC) and operated in dusty conditions and at temperatures up to  $50\text{ }^{\circ}\text{C}$ . At this location, a total of 2,760 vehicular miles were accumulated.

At the Aberdeen Test Center (ATC), testing consisted of the M22 being mounted on the outside of the M113 APC and at the center console of the HMMWV. Both vehicles accumulated a total of 10,000 vehicular miles while being driven over the Perryman Cross-Country vehicle qualification courses. In all cases, the M22 and its vehicle mount operated successfully and without false alarm.

An additional test was conducted at ATC to qualify the M22 for attack vehicles. The M22 was mounted both inside and outside the M1A1 Main Abrams Battle Tank using the vehicle mount. The M1A1 cannon was fired to determine if the blast, shock and combustion effluents would effect the operation of the M22. The M22 operated successfully throughout the test.

The M22 is rugged, not prone to interferences, and is very sensitive to chemical agents. Its application on vehicles is the next step for providing our mechanized forces with the warning and information essential to protect the crew and to avoid contamination of their equipment. Currently, the M22 is being installed in all M93A1 Nuclear Biological Chemical Reconnaissance Systems (Fox vehicles) and the M22 is a

requirement on the Bradley Command Control Vehicle (C2V), the Advanced Amphibious Assault Vehicle (AAAV) and Light NBC Recon. The M22 can be applied to many types of platforms including the M113, HMMWV, Crusader, Paladin, Future Scout Vehicle, SUSV, M2 Bradley, and M1 Abrams. Applications on other vehicles are also viable.



Graseby, the developer of the GID 3 (which was designated the M22 by U.S. Forces) has fielded the detector on vehicles from several countries including Canada, United Kingdom, and Kuwait. The use of vehicles as mobile platforms for detecting a chemical threat will require development of doctrine but has the potential to provide warning to a mechanized company independent of ground troops.

At a minimum, the M22 detector mounted on the vehicles, will provide the crew with a level of warning to protect both themselves and their equipment or to engage collective protective equipment, if available.

The ACADA team is dedicated to product support and we have several publications available or in development to assist operators and users in the deployment and operation of the M22. These include technical manuals, bulletins, a CD ROM, and an operator's video.

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## SERVING OUR SOLDIERS THROUGH ACQUISITION REFORM

Over the past several years, many Acquisition Reform (AR) tools have been developed to help us better and more quickly fulfill the needs of our soldiers and other customers. Dr. Jacques Gansler, Under Secretary of Defense (Acquisition and Technology) has embraced Acquisition Reform as one of his three overarching priorities, and views it as a means to maximize our resources while providing superior equipment to warfighters more quickly.

Because it is so essential to our success, Major General John C. Doesburg, SBCCOM Commander, issued a memorandum in March stating that he “considers Acquisition Reform as high a priority for SBCCOM as it was for our predecessor commands, SSCOM and CBDCOM.”

In order to ensure that we are making optimum use of the AR tools available to us to enhance our performance, he has initiated the establishment of a network of command “champions” responsible for leading and guiding us in applying the major tools of AR. We will be asking each champion to pull together a team of players to help us exploit these tools and measure our success in their application. Although these champions and primary players will be drawn primarily from the RDA Enterprise, the SRS Enterprise and the AMC Acquisition Center, the success of our efforts to employ AR requires the commitment of all elements of our command.

Our performance in AR, like that of the other MSCs, is annually assessed by the Acquisition Reform Implementation Assessment Team (ARIAT), an ad hoc team comprised of AMC and other MSC acquisition workforce personnel. CBDCOM and SSCOM each did well in last year’s ARIAT assessments, but each received less than top scores in several areas or “focus elements.” The ARIAT is scheduled to perform this year’s assessment of SBCCOM in July. This year’s focus elements and scoring criteria are more stringent and challenging than last year’s. Thus we need to maximize our efforts to ensure we are using the feedback from last year’s assessment and other lessons learned to enhance our performance and prepare for this year’s assessment.

MG Doesburg closed by stating that “More detailed guidance on the establishment of AR champions and responsibilities will be issued shortly. I solicit the cooperation of each of you in fully supporting our designated champions in their efforts, and for ensuring our command gets full credit for the AR measures we are taking to better serve our soldiers and other customers. And I thank you for your commitment to our success.”



## CONTRACTING GOES PAPERLESS

**C**an you imagine a paperless government office? A paperless government contracting office?

Dr. John Hamre, Deputy Secretary of Defense, can. He has established a goal that the DOD contracting process would be paperless by 1 January 2000.

Converting a paper-intensive process like contracting to a paperless one is a massive effort. By now everyone recognizes that a truly paper-free contracting environment will not be achieved by the turn of the millennium. (Contracting was now joke that “paperless” means “less paper” – not “no paper.”) But that doesn’t mean the AMC Acquisition Center (AMCAC) is not taking the goal seriously. We must report our progress monthly to the Army paperless contracting office. And AMC has set us a goal of being 75% paperless this year this is one of the metrics tracked by the AMC Commander in his quarterly AMC Review & Analysis.

Contracting has always been a paper-intensive process. The purchase request, the solicitation, the offeror’s proposal, the contract – usually they’re all paper. It’s not unusual for us to send out 200 or more copies of a large solicitation (each one can be up to several inches thick) to interested companies. The proposals from industry are often in several volumes (with multiple copies of each, of course), and are frequently delivered to our contracting offices in large boxes. Once the contract is awarded, there are a dozen or more offices that want copies of the contract. And that’s just the beginning: there may be several years of intensive paper-shuffling involved in contract administration – modifications, vouchers, payments, data, interim reports, final report, audits, drawings, patent disclosures, close out documentation. The list goes on... and the trees continue to fall.

The first tentative steps toward paperless contracting came early in the decade with the use of Electronic Bulletin Boards to post solicitations. Bulletin Boards weren’t very effective.

Then in 1995 came FACNET, which is a true EDI process – the contracting office can post requests for quotation, vendors can submit quotes, and the contracting officer can post the award electronically. FACNET was aimed primarily at the huge number of contract actions under \$100,000. The APG Garrison Directorate of Contracting initially embraced this new technology with enthusiasm, and for a few months was the largest user of FACNET in the Army. When FACNET was successful, it was very successful – buys that used to take 30-40 days could often be done in 5 days or less. Unfortunately, when FACNET wasn’t successful, it was very unsuccessful – either no quotes were received, or quotes were received on the wrong items, or so many quotes were received it took forever to sort through them. An early study showed that buys that used to take 3-4 days took an average of 10 days with FACNET. Participation by vendors was lackluster overall. And FACNET wasn’t all that paperless: buyers felt that they needed to follow up the electronic award (which simply posted the award electronically) with a paper copy. We still lived in a paper-based culture.

A few years ago some contracting offices with large automation staffs began to devise ways to use the World Wide Web to post solicitations, and to employ e-mail and other techniques to issue delivery orders, etc. Many of these efforts have been extremely successful in reducing costs and contracting lead time.

Meanwhile, the AMCAC contracting offices at Aberdeen and Edgewood had to sit by and watch. We use SAACONS to generate solicitations and contracts. SAACONS was initially implemented well over 10 years ago -- and looks its age. It cannot generate a solicitation in a format that can

be placed directly on the Web. Although many improvements have been made since it was first fielded, SAACONS is just now getting close to the point where the majority of solicitations and awards could be posted electronically to the Web.

However, just as SAACONS is getting ready to go paperless, it is going to be replaced by a new contracting system, PD2, a.k.a. SPS.

Between PD2 and other initiatives, the world of contracting should be virtually paperless very soon. But before we look into the crystal ball, let's look at where we are now.

- Over 80% of the purchase requests come into the Aberdeen branch electronically via the AMC Installation Supply System (AMCISS) or other automated system.

- Many of our larger solicitations are now posted on the World Wide Web. If you go to the A M C A C Home Page (<http://www.sbccom.apgea.army.mil/srs/amcac/rfp/rlist.html>) and click on "RFP" you can access several recent solicitations. These solicitations are available only on the Web – paper copies will not be made available. However, for the most part we still receive proposals on paper, and we still usually award paper contracts.

- Most buys under \$100,000 are solicited via phone and, whenever possible, purchase orders under \$25,000 are awarded via phone with a credit card.

- We still use FACNET when it makes sense, and now solicitations issued via FACNET are also posted on the Army Acquisition Business Web-site, which has recently been developed as the Army's single Web location for solicitations. (From our Home Page, click on "RFQ", then "RFQ Search...", and follow the directions.)

- Virtually all our contractors are paid by Electronic Funds Transfer or credit card.

Now for the future! You can expect to see the following within the next year or so:

- All or nearly all purchase requests and related documents will be sent to the contracting office electronically. Army is currently considering whether to adopt a standard Army-wide "front-end" system for submitting purchase requests to contracting offices, but whether or not the same "front-end" is used Army-wide, the purchase request system will become virtually paperless.

- The contract specialist (and others as appropriate) will prepare the solicitation and all the associated paperwork electronically in PD2. If any approvals are needed, the documents will be circulated electronically. The solicitation will be posted on the Web.

- Companies will submit their proposals via the Web. Just as many people worry about the security of their credit card numbers if they order something over the Web, contractors have been very concerned about the security of their proposals if they submit them electronically. Currently available technology is being used to resolve this issue.

- Automation tools will be used to help with the evaluation of proposals. One such tool, FedSelect, is routinely used with great success by SBCCOM in the evaluation of their major procurements.

- The contract will be generated in PD2, awarded by affixing the contracting officer's electronic signature to the document, and posted to the Web.

- Contract distribution will be a thing of the past. We will no longer reproduce a dozen or two fat copies of every contract and distribute them in hard copy. Organizations will access their contracts via the Internet. Those who simply must have a hard copy will be able to print their own copies from the Web.

- Contract administration will be accomplished using the Web, e-mail, etc. Contractor data (reports, vouchers, tech manuals, etc.) will be transmitted electronically.



-- Those pieces of paper that do slip into the paperless contracting world will be scanned and stored electronically. Contract files, some of which currently require several boxes of storage space, will be transferred to a CD-ROM.

No doubt you're saying to yourself, "Gee, this sounds super! I wonder if I can help!" Well, if you're involved in submitting purchase requests, you can. Here are several things you can do to join the paperless revolution in acquisition:

-- Prepare any documents for contracts (e.g., Statements of Work, historical data, purchase descriptions, etc.) in Word, Excel or other Microsoft Office format and provide them to the contract specialist by e-mail or floppy disc. This will enable them to be entered into PD2 without any re-keying.

-- Don't ask for any data from contractors unless you really need it.

-- If you require data from contractors, have it delivered to you electronically. (If you really need a paper copy, you can always hit the print button.)

A final note: PD2 is currently scheduled to be fielded at APG in July and August. This is not the best time from an end-of-the-year standpoint. Experience at other contracting sites indicates that there is a significant learning curve for PD2. Although we will again do our best to satisfy your needs, we would urge you to submit your end-of-the-year purchase requests as early as possible to minimize the possibility that your funds will not be obligated by 30 September.

## "Paperless Contracting" Glossary

As in any other area of the Government, paperless contracting has its own alphabet soup. Here are some of the key acronyms and what they stand for:

EC – Electronic Commerce. EC is the use of electronic means to carry on some facet of contracting.

EDI -- Electronic Data Interchange. EDI is the computer-to-computer exchange of business information (e.g., solicitations, proposals, contract awards) electronically.

EDA – Electronic Document Access. EDA allows awarded contract to be posted on the Web. Access to the contracts is currently controlled by use of passwords.

FACNET – Federal Acquisition Computer Network, established by the Federal Acquisition Streamlining Act (FASA) of 1994.

PD2 – Procurement Desktop–Defense, the new contracting software package developed by American Management Systems (AMS) as the standard contracting system for the Department of Defense.

SAACONS – Standard Army Automated Contracting System. SAACONS is currently used as the sole automated contracting system at both the Aberdeen and Edgewood contracting branches.

SPS – Standard Procurement System, the generic name for the contracting system.

POC: Mr Lance Davis, AMC Acquisition Center, Commercial (410) 278-0879, or DSN 298-0879



# Fieldings

 <p><i>M56 Smoke Generator</i></p>	<p>59<sup>th</sup> Cml Co., Ft. Drum, NY            11<sup>th</sup> Cml Co., Ft. Lewis, WA            371<sup>st</sup> Cml Co., Ft. Jackson, SC</p> <p>POC: Randal H. Loiland            AMSSB-PM-RSM-M, DSN 584-2806</p>	<p>Aug 99            Sep 99            Nov 99</p>
 <p><i>M58 Smoke Generator</i></p>	<p>4<sup>th</sup> Cml Co., Camp Casey, Korea            Nat'l Trng Cntr, Ft. Irwin, CA            Kuwait</p> <p>POC: Peter F. Annunziato            AMSSB-PM-RSM-L, DSN 584-2362</p>	<p>Jul 99            Sep 99            Oct 99</p>
 <p><i>M157A2 Motorized Maintenance Work Order (MWO) Retrofit Kit</i></p>	<p>304<sup>th</sup> Cml Co, USARC, Ft. Chaffee, AR            342<sup>th</sup> Cml Co, USARC, Ft. McCoy, WI</p> <p>POC: Janice A. Nordin            AMSSB-PM-RSM-V, DSN 584-2838</p>	<p>Aug 99            Sep 99</p>
 <p><i>M157A2 Mechanized Maintenance Work Order (MWO) Retrofit Kit</i></p>	<p>140<sup>th</sup> Cml Co., California NG, Ft. Irwin, CA            135<sup>th</sup> Cml Co., Illinois NG, TBD</p> <p>POC: Janice A. Nordin            AMSSB-PM-RSM-V, DSN 584-2838</p>	<p>Nov 99            Dec 99</p>
 <p><i>Light Vehicle Obscuration Smoke System (LVOSS)</i></p>	<p>Various Inf/MP Div., Cbt Spt Cos., Ft. Bragg, NC            Various MP/Hvy Divs., Cbt Spt Cos., Ft. Hood, TX            Various Inf AASLT, 101<sup>st</sup> MP Div, and 194<sup>th</sup> Cbt Spt Co., Ft. Campbell, KY</p> <p>POC: Henry St.Pierre            AMSSB-PM-RSM-R, DSN 584-5527</p>	<p>Sep 99            Nov 99            Nov 99</p>

 <p><i>Biological Integrated Detection System P31</i></p>	<p>4<sup>th</sup> Platoon, 7<sup>th</sup> Cml Co., Ft Polk, LA 5<sup>th</sup> Platoon, 7<sup>th</sup> Cml Co., Ft Polk, LA</p> <p>POC: Bruce W. Jezek AMSSB-RBD, DSN: 584-3351</p>	<p>Aug 99 Sep 99</p>
 <p><i>M93A1 FOX/MICAD</i></p>	<p>3<sup>rd</sup> ID, Ft. Stewart, GA USMC, Camp Pendleton, CA</p> <p>POC: MAJ John M. O'Regan AMSSB-PM-RNN-T, DSN 584-6551</p>	<p>Aug-Sep 99 Oct-Nov 99</p>
 <p><i>M40A1/M42A2 Mask</i></p>	<p>West Virginia NG, Kingswood, WV Kentucky NG, Lexington, KY Tennessee NG, Nashville, TN Michigan NG, Detroit, MI 70<sup>th</sup> RSC, Yakima, WA Ohio NG, Columbus, OH Alaska NG, Anchorage, AL Maryland NG, Baltimore, MD Virginia NG, Newport News, VA North Carolina NG, Charlotte, NC</p> <p>POC: MAJ John M. O'Regan AMSSB-PM-RNN-M, DSN 584-6551</p>	<p>Aug 99 Aug 99 Sep 99 Nov 99 Nov 99 Nov 99 Nov 99 Dec 99 Dec 99 Dec 99</p>
 <p><i>M45 Aircrew CB Protective Mask</i></p>	<p>Chemical School, Ft. Leonard Wood, MO Aviation School, Ft. Rucker, AL 2<sup>nd</sup> ID, Camp Casey, Korea 101<sup>st</sup> AA, Ft. Campbell, KY TF 160<sup>th</sup> SOAR 82<sup>nd</sup> AA, Ft. Bragg, NC</p> <p>POC: MAJ John M. O'Regan AMSSB-PM-RNN-M, DSN 584-6551</p>	<p>Aug 99 Aug 99 Oct 99 Nov 99 Nov 99 Dec 99</p>

 <p><i>M48 CB Apache Aviator Mask</i></p>	<p>Chemical School, Ft. Leonard Wood, MO  Aviation School, Ft. Rucker, AL  2<sup>nd</sup> ID, Camp Casey, Korea  101<sup>st</sup> AA, Ft. Campbell, KY  82<sup>nd</sup> AA, Ft. Bragg, NC</p> <p>POC: MAJ John M. O'Regan  AMSSB-PM-RNN-M, DSN 584-6551</p>	<p>Aug 99  Aug 99  Oct 99  Nov 99  Dec 99</p>
 <p><i>Improved Chemical Agent Monitor</i></p>	<p>82<sup>nd</sup> Airborne Div, Ft. Bragg, NC  18<sup>th</sup> Airborne Corps, Ft. Bragg, NC  Special Forces, Ft. Bragg, NC</p> <p>POC: MAJ John M. O'Regan  AMSSB-PM-RNN-M, DSN 584-6551</p>	<p>Aug-Sep 99  Aug-Sep 99  Aug-Sep 99</p>
 <p><i>M22 Automatic Chemical Agent Alarm</i></p>	<p>Special Forces, Ft. Carson, CO  Special Forces, Ft. Bragg, NC  Special Forces, Okinawa, Japan  Special Forces, Stuttgart, Germany  4<sup>th</sup> Cml Co., Camp Casey, Korea</p> <p>POC: MAJ John M. O'Regan  AMSSB-PM-RNN-A, DSN 584-6551</p>	<p>Jul 99  Aug 99  Oct 99  Oct 99  Oct 99</p>
 <p><i>Joint Warning and Reporting Network Software</i></p>	<p>4<sup>th</sup> Infantry Division, Ft. Hood, TX  III Corps, Ft. Hood, TX</p> <p>POC: MAJ John M. O'Regan  AMSSB-PM-RNN-A, DSN 584-6551</p>	<p>Jul 99  Jul 99</p>



## END ITEM UPDATES:

### NBC DEFENSE EQUIPMENT

#### *Reconnaissance, Detection, and Identification –*

##### *Automatic Chemical Agent Alarm (ACADA), M22 –*

- 328 ACADA Systems were accepted on the production contract in April.
- A modification to the ACADA contract to purchase systems for the Rapid Assessment and Initial Detection (RAID) teams was awarded.
- A contract modification was negotiated to add an additional 195 ACADA systems for delivery to the Army in FY99 and FY00.
- An ECP was prepared to release special packaging instructions in support of the ACADA. This will provide depots the required technical data to package the ACADA unit and operator spare/repair parts.

##### *Biological Integrated Detection Systems (BIDS) –*

- The electronic technical manual for the M31E1 BIDS has been completed. This version of the manual features the latest HTML technology instead of the Windows help technology used in previous versions.
- A technical report titled “Shelf-Life Studies of NDI and P3I BIDS Consumables” was submitted for publication. This report details results of experiments to predict the reliability of consumable BIDS components after the manufacturer’s expiration date. By extending the lifespan of these components, a substantial cost savings can be achieved. For a Company of NDI BIDS the savings over three years is more than \$1 million. And for a Company of P3I BIDS the savings over three years is more than \$1.8 million.

*M34A1 Sampling Kit, CBR Agent* – The adoption process has been completed for the newly configured M34A1 Kit. The conclusion of an Engineering Study has resulted in numerous configuration changes to the M34 Kit (NSN 6665-00-776-8817), which include elimination of glass containers; no components that limit shelf life; addition of tools to aid in a wider range of sample collection; and for samples being transported to a lab, compounds will not be added for analysis prior to reaching the lab. The current inventory of M34 Kits will be used until exhausted. The first buy of the M34A1 is projected to be in 4QFY99.

*M8A1 Chemical Agent Alarm Modification Kits* – About 4,000 M8A1 Modification Kits have been issued free to requesters in the field. The Modification Kit includes two tethers to attach the rain shield and flow meter to the handle of the M43A1 Detector. This change will help prevent these items from being lost or damaged. The Kit also includes a jumper wire to be added to the back of the M43A1 Detector horn. This change will allow the horn volume to be totally silenced. Additional efforts are underway to increase the awareness of the availability of the Modification Kit. To obtain a free Kit, send email to Rebecca Morse at [morser@ria.army.mil](mailto:morser@ria.army.mil). For technical information, send email to Loren Morse at [morsel@ria.army.mil](mailto:morsel@ria.army.mil).

*Chemical Agent Monitor (CAM) –*

- The Rock Island CAM Team set up an area for installing the 700 Code Condition F (unusable) CAMs and completed the installation of 31 Modification Kits. This installation upgrades these CAMs to the ICAM configuration. The first 69 upgraded are going to the Navy. The Navy has returned 260 unserviceable CAMs; in return we are giving them 69 ICAMs. The team will then recover the CAM pumps, normally costing about \$375; the CAM printed circuit board (PCB), normally costing about \$700; and the Drift Tube Modules, normally costing about \$1,500. The PBC will be inspected and repaired in necessary for a cost of approximately \$250 and the Drift Tube Modules are being sent to ETGI for refurbishment at a cost of about \$800 each.

- Storage tests of the CAMs with the new metal sieve packs reveal that these CAMs started more quickly than the CAMs fitted with the standard plastic sieve packs. After environmental tests and three months of storage, CAMs with the metal sieve packs took between 10 and 30 minutes to come out of “wait” mode, but they immediately responded to both H and G modes of the confidence test. The CAMs with the plastic sieve packs came out of the “wait” sooner, but after an hour of running still did not respond to the H mode confidence test. These metal sieve packs will be incorporated into CAM cells through an overhaul contract with ETG. These metal sieve packs are also refillable at direct support and do not require depot repair.

- The contract for the CAM Training Simulator was awarded to Argon Electronics, Luton, England for 310 CAMSIMs. Of these, 138 are for the RAID Teams. The remainder are for the Joint Services. We have four additional years of evaluated options for quantities of up to 280 each year. In addition, we have an option to upgrade CAMSIMs purchased over the last four years by the Army and Air Force to the current configuration.

*Detector Kit, M256A1* – The Detection/Decon Kit In Process Team decided to bundle the M256A1, M28, and M29 simulators associated with the M256A1 Detector Kit, and go for a “full and open competition” procurement action. One of these items had traditionally been a small-business set aside. However, due to the similarity of the items, and price reductions obtained in past bidding when including large business competition, it was decided bundling would make the most economic sense. This action was coordinated with the TACOM-ACALA Small Business Office at Rock Island.

*Fox Reconnaissance Vehicle, M93A1 –*

- The Interactive Electronic Technical Manual (IETM) (Class 4/5) for the M93A1 Fox vehicle is complete. The CD contains the Lubrication Order, Operator’s and Unit (PM NBC Suite/TACOM Hull) Maintenance Manuals, and Sustainment Training.

- PM NBC Defense Systems conducted a swap of systems slated for the M93A1 upgrade contract at Anniston Army Depot. This swap was a complete inventory and turn-in of the older systems at Fort Carson and a complete inventory and issue of the newer Interim System Production M93 versions. Anniston Army Depot with General Dynamics Land Systems Division is upgrading the older systems to the M93A1 configuration.

- PM NBC Defense Systems demonstrated a training device for the MM-1 Mass Spectrometer mounted in the M93 Fox during the XVIII Airborne Corps EXEVAL of the 83<sup>rd</sup> Chemical Brigade at Ft. Bragg. The trainer was designed and fabricated in-house and consists of a laptop computer, commercial Global Positioning System (GPS), and a probe positioning module. Simulated chemical contamination patterns are programmed in the trainer and the software determines if the vehicle is in the simulated contaminated area using inputs from the GPS. The MM-1’s internal calibration gas is triggered by the computer to simulate all



modes of normal operation. The Fox crews were able to successfully locate and mark the simulated contaminated areas. The training is realistic and environmentally safe.

*Multipurpose Integrated Chemical Agent Alarm (MICAD) –*

- The Test and Evaluation Command's Safety Confirmation for the MICAD is complete. This document constitutes the safety confirmation of the MICAD for use on the M93A1 NBCRS and 4th Infantry Division Digitized Division vehicles.

- A demonstration of the interface between MICAD and preliminary JWARN Phase Ic (NBC Analysis software for windows) was completed successfully. The JWARN software was able to receive the MICAD NBC-1 and NBC-4 reports. The software will be finalized and integrated into the JWARN NBC analysis software as an option module.

- A bi-lateral modification to the MICAD EMD Contract has been negotiated and put in place to improve and upgrade MICAD Software Build 4.6.

- We have received a new model designator for the MICAD system configurations that will be fielded to the 4<sup>th</sup> Infantry Division. These configurations include the "MICAD Boxes" and the Embedded MICAD configurations. The official nomenclature/model designator is Alarm Monitor Group: (MICAD), NBC, tactical vehicles/area warning, XM32. The official nomenclature/model designator for the MICAD going in Fox vehicles remains as Alarm Monitor Group: (MICAD), NBCRS FOX, M27.

- The JWARN Phase II nomenclature and type designator for hardware to be developed has been approved and assigned. The complete nomenclature and type designator is ALARM MONITOR GROUP: JWARN, detector interface device (transceiver), XM33.

*Pocket Radiac, AN UDR-13 –* The contractor continues to produce ahead of schedule.

***Individual Protection –***

*M48 Chemical-Biological Apache Aviator Mask –*

- Our Lightweight Motor Blower (LWMB) manufacturer, Micronel Corporation, has begun production of the redesigned unit. Design changes were incorporated following a thorough failure analysis on units exceeding our leakage requirement. All LWMBs remaining on the production contract shall be delivered in accordance with the new configuration. All units previously purchased shall be retrofitted with new housing shells and sealing gaskets. The M48 CB Mask production, suspended 3QFY98, was restarted on 12 Apr 99 using the first lot of LWMBs received.

- An Operations and Savings Cost Reduction (**OSCR**) proposal was submitted under the M48 mask program. The proposal is twofold: develop a process to remove the notched right eye lens from field and return M43 CB Masks and M43A1 Type II CB Masks stored in depot. The M43 notched eye lens will subsequently be bonded into the M43A1 Type II Mask to make M48 Apache Aviator Masks. The ability to make much needed M48 Masks in lieu of initiating a new full-scale production represents a large cost savings. Also, the proposal includes using spare parts from the M43Mask that are common to the M48 Mask. These spare parts will then be inspected, packaged, and placed into the supply system to support the M48 Mask.



*M49 General Aviator CB Mask* – An **OSCR** proposal was submitted to the SBCCOM OSCR Manager at Natick, MA. The proposal intends to convert the M49 General Aviator CB Mask into the M48 Apache Aviator CB Mask at a substantial cost savings to the government. This project will be a joint effort between SBCCOM and Pine Bluff Arsenal.

*Joint Service General Purpose Mask (JSGPM)* –

- The JSGPM has been assigned nomenclature. Two categories were established: Field (XM50) and Combat Vehicle (XM51).
- The contracting office released the second draft of the JSGPM solicitation on the following URL: <http://www.apgea.army.mil/RDA/pmnbc/jsgpm1/index.htm> from the AMC Acquisition Website.

*M40 Mask* –

- SBCCOM has requested ILC and 3M Corporation to investigate the possibility of obtaining a NIOSH certification for the M40 Mask. NIOSH certification would make it easier for the Department of Justice to obtain approval to use the M40 Mask when they take over the CB Training Facility at Fort McClellan.
- The first Individual Protection Team paperless Procurement Package Input (PPI) was recently completed for the M40A1 Mask Faceform Packaging Support (P/N5-1-1003). The paperless PPI processing is in compliance with a TACOM-ACALA requirement to use paperless solicitations by June 1, 1999. The submittal of PPI electronic word files is an interim process that will soon be replaced by the JCALS Work Flow manager.

*M45 Mask* – The Mask Hood Assembly's Special Packaging Instructions were revised to change the unit of issue to "each" instead of "bag." The quantity per unit was changed from five hoods to one, and the supplemental container was deleted. The packaging is now similar to other mask hood assemblies.

*CB Canisters and Filter Elements* – The most recent update to **Supply Bulletin 3-30-2**, Chemical-Biological Canisters and Filter Elements: Serviceability Lists, are now available on the Chemical Defense Equipment area of the Army Electronic Product Support (AEPS) web site. The document is dated 25 Mar 99 and provides the latest serviceability status of canister and filter element lots in SB 3-30-2, as well as Air Force TO 14P4-1-151. This valuable information for the soldier in the field is now more accessible, timely, legible, and less expensive to disseminate than ever before through the use of the world wide web.

*M41 Protection Assessment Test System (PATS)* – The M41 Project Office conducted a Tri-Service Technical Manual Verification in May. Representatives from the Air Force, Marine Corps, and Chemical School have drafted a Joint Service Technical Manual to replace the contractor's operator's manual. The new Joint Service 12&P manual is scheduled to be published this fiscal year and distributed to all M41 PATS users.

***Collective Protection*** –

*M28 Collective Protection Equipment* –

- Intellitec, Inc. is currently producing Air Force quantities of M28 Collective Protection Equipment components for the Chemically Hardened Air Transportable Hospital and the Transportable Collective

Protection System. They switched over to the production of Army quantities in May for the Chemically Protected Deployable Medical System.

- Additionally, Natick has opted to eliminate the top-level M28 CPE configuration that supports their CP DEPMEDS quantities. In its place, Natick has requested a top-level subassembly list similar to the one developed for the Air Force M28 CPE configuration. This will give the Army medical community more flexibility in configuring field hospital complexes with M28 CPE/TEMPER components. This change will only affect one of the eight current configurations.

### ***Decontamination –***

*Individual Equipment Decontamination Kit, M295* – Guild Associates, Inc., submitted the Candidate Reactive Sorbent Comparison and Selection Report. Based on information provided in the report, both the alumina-type and carbon-type sorbents are viable alternatives to XE555, which is currently employed in the M295 Kit. Both sorbents are much less expensive than XE555 (\$12-15 per pound versus \$80 per pound), more readily available, and offer performance advantages in terms of agent reactivity and off-gassing.

*Skin Decontamination Training Kit, M291* – The Detection/Decontamination Core Team received \$123K in **OSCR** funding to establish the M291 Training Kit. Of that amount, \$61K will be used in FY99 to conduct market research for candidate filters, ordering materials, generating a test plan, and completing laboratory testing. The remaining \$62K has been allotted for FY00 and will be used for conducting operational testing, completing the test report, generating a performance specification, and preparing an adoption package and ECPs. The project is scheduled to be completed in June 00.

*Sorbent Decontamination Systems (SDS)* – The **ECP** on the initial release of EA-PRF-2166, Decontaminating Agent, Sorbent Powder, has been approved. Sorbent is now in the system and is approved for use as a chemical agent decontaminant. Its formulation and manufacturing instructions are provided in an appendix to the performance purchase description EA-PRF-2166,

*Decontamination Apparatus, M11 and M13* – The team has down selected to one configuration for the sorbent applicator that will replace the M11 and M13. The system will consist of a black box containing two oversize mitts and 24 ounces of sorbent, packed in two 12-ounce briquettes. The total space requirement of the black box will be less than that of the M11, but the amount of sorbent provided will be enough to do slightly more than the M11.

*Joint Service Fixed Site Decontamination* – The Joint Services approved a plan for the Edgewood CB Center to perform decontamination characterization studies. The studies include tests to determine general rate of reaction and reaction products associated with reactions between fixed-site decon candidate decontaminants and chemical agents; tests to evaluate the effectiveness of the candidate decontaminants in decontaminating chemical agents from painted panels; a screening of candidate decontaminants versus detector systems; and literature reviews addressing potential safety, health and environmental hazards associated with the candidate decontaminants. The studies will be conducted through September.

## **SMOKE SYSTEMS**

*Discharger, Grenade, Smoke, Countermeasure: M6, Modified* – Electromagnetic Effects (E3) Testing was completed at White Sands Missile Range and Redstone Technical Test Center on the newly designed Aluminum (AL) M6 discharger. Test results for the AL M6 were significantly better than for the standard

composite M6 Discharger housing. An **ECP** to the M6 incorporating the cast AL housing will be implemented prior to the start of Production in FY00. Significant cost savings, in addition to the increase in E3 protection, will result from the switch to the AL housing.

*Coyote Smoke Generator, M56 –*

- To date RST has delivered 181 Coyotes under the current production contract (65% of the contract requirements). Of this total, 111 of the systems have been fielded to FORSCOM and TRADOC units, while 70 remain at the Aberdeen Test Center in preparation for fielding.

- All M56 fuel tanks with a metallic insert at the level sensor location will be retrofitted with the new design fuel tank, which has molded plastic threads at that location. The contractor, RST, will manufacture 159 of the new tanks and provide a team to retrofit all tanks at the seven fielding sites and on the M56 systems at the Army Test Center awaiting fielding. All M56 systems delivered since Dec have the new design in place. The spares inventory has been purged of the old design fuel tanks.

*Wolf Smoke Generator System, M58 –*

- The M58 team prepared system-specific survey questions for an after-action questionnaire to obtain customer feedback from previously fielded units. The M58/M56 system questions were sent to the **Operational Forces Interface Group (OFIG)** at Natick who will formalize an official questionnaire. OFIG conducted a survey, using this questionnaire, at Fort Hood in April; OFIG will provide the survey results and send them to PM Smoke/Obscurants.

- The Forces Command Environmental Office and the Judge Advocate General determined that the environmental documentation for fielding and use of fog oil and graphite at Fort Riley meets the requirements of the National Environmental Policy Act. With this approval the Forces Command Deputy Chief of Staff for Logistics provided the 172<sup>nd</sup> Chemical Company and Fort Riley authorization to requisition and use graphite. Fort Riley is the first U.S. Army installation to gain graphite approval. This makes the 172<sup>nd</sup> the first unit to begin training with Infrared obscurants. M58 Wolfs were fielded to the 172<sup>nd</sup> Chemical Company in January.

*Smoke Generator Sets, M157A2 –* Two M157A2 Smoke Generator Sets participated in the NATO Electrooptical Structured Technology Demo (NATO EOSTD) at Fort AP Hill, VA. Missions included both daylight and night, stationary and mobile.

*Grenade, Anti-Riot, Irritant, XL96E1 and Grenade, Anti-Riot, Practice, XL97E1 –* A fixed-price production contract was awarded in March to Paines Wessex Ltd, Salisbury, UK. The contract was competitive and awarded based on best value. The UK Ministry of Defense awarded the contract with U.S. quantities as a contract option. U.S. production of the L96/97 Grenades is currently unfunded. The L96/97 was a joint UK/US development under the Foreign Comparative Test Program.

*Federal Standard UU-T-81 –* We received a proposed cancellation notice for Federal Specification UU-T-81; Tags, Shipping and Stock. These tags are widely used in packaging documents, as well as in the commercial marketplace. Three Commercial Item Descriptions are available for similar tags. These item descriptions were compared to the Federal Specification; equivalencies and significant differences were documented. The only tag that will not be available is Type D, made of spun-bonded olefin. Three minor differences in thickness and basis weight should have no impact on usage.



The Smoke Core Team prepared an **ECP** for revisions to MIL-DTL-637, MIL-DTL-1353, and MIL-DTL-3793. These specifications were distributed for boarding at an upcoming Configuration Control Board meeting. Revisions were previously coordinated within the Department of Defense to replace the interim versions of these documents with new, fully-coordinated revisions.

**Specifications Canceled** - In accordance with Military Specification Reform Policy Memorandum 98-7, DoD-prepared Federal Specifications, **NNN-D-345**, Platinum Dish, 11 Jan 63, and **NNN-M-560**, Mortar and Pestle, 26 Oct 62, should be canceled since they are no longer needed for procurement.

**Test of Virtual Integrated Materiel Management Center (IMMC) Tech Data Packages** – Efforts are ongoing in the chemical portion of the Proof of Principle Concept Test for Virtual IMMC Technical Data Packages (TDP). This Phase I test includes IMMC demonstrating an ability to access chemical TDPs located in the Rock Island Arsenal JEDMICS database. The test also involves the IMMC reproducing the TDP data in JEDMICS CD format. Thus far, three TDPs have been accessed from the RIA database and reproduced on CDs. These CDs were analyzed, and found to be accurate reflections of the technical data. All Phase I testing was to be completed by the end of Apr 99.



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<http://www.sbccom.apgea.army.mil/>

## HELP LINES/TOLL-FREE NUMBERS

	<i>Telephone No.</i>	<i>fax no.</i>
Chemical Maintenance	Germany 0130810280 Korea 0078-14-800-0335 CONUS 1-800-831-4408	1-410-436-3912 (TOLL CALL)
Smoke/Obscurants	1-888-246-1013	1-410-436-2702 (TOLL CALL)
CB Helpline (NONEMERGENCY TECHNICAL ASSISTANCE)	1-800-368-6498	1-410-436-0715 (TOLL CALL)
Environmental Quality	1-410-436-6588 (TOLL CALL)	1-410-436-8484 (TOLL CALL)
Operational Forces Interface Group (OFIG)	1-508-233-5341 (TOLL CALL) DSN 256-5341	

## THERMAL TREATMENT FACILITY

**A** On December 23, 1998, the last piece of equipment from the dismantled Thermal Treatment Facility (TTF) was taken to the Salvage Yard at the Aberdeen Area of Aberdeen Proving Ground. The TTF was originally licensed on May 16, 1985, for the thermal treatment of spent decon solutions as well as solids that may have been exposed to chemical agents and then decontaminated and/or monitored to prove the absence of agent vapors. The TTF was not included in the Controlled Hazardous Substance Permit No. A-190 (RCRA Part B) Renewal Application (covering N Field and the Chemical Transfer Facility) submitted to the Maryland Department of Environment on November 14, 1997. The last burn was completed on May 14, 1998, when the operating permit for the facility expired.

The TTF completed 2,220 operational days during its successful 13-year run and 6,762,257 pounds of waste was treated. All scrap metal was taken to the Aberdeen Area of Aberdeen Proving Ground for processing at the Salvage Yard. The TTF was dismantled in accordance with requirements for closing hazardous waste treatment facilities and the Closure Plan approved by MDE.



*Mr. Harry Taylor, Edgewood CB Center, and Mr. Charlie Brinegar, DPW, secure the burn car (primary section of the incinerator).*

Under the terms of the Closure Plan, the thermal treatment unit, air pollution control devices and associated tanks and piping were cleaned and dismantled. The associated buildings, which may have been contaminated with heavy metal as a result of operations, have been cleaned and retained for use by the Edgewood Chemical Biological Center. Spent decon solutions generated as a result of dismantling and cleaning the facility were disposed of as hazardous waste.



*The last truckload of material from the former Thermal Treatment Facility leaves for the Salvage yard at Aberdeen Proving Ground.*

The Facility operated with a five-man core team and cross-trained individuals from within the Chemical Applications Division. Mr. Dean Smith, Team Leader, retired in January 1998. When the Facility closed its doors in May 1998, Mr. Fred Cholette, Mr. John Ford, Mr. Bob Russell, and Mr. Nick Visnich were the core team. Mr. Cholette, Mr. Russell, and Mr. Visnich have since retired. Mr. Ford continues to work within the Chemical Applications Division.

Closure Plan coordination and remediation was supervised by Mr. Dennis Hall, Chief, Applications Integration Branch and Mr. Tim Blades, Chief, Chemical Applications Division. Actual Facility closure was done by individuals from within the Chemical Applications Division.

POCs: Mr. Dennis G. Hall, CB Services Directorate, Commercial (410) 436-2393 or DSN 584-2393, or email dghall@apega.army.mil, or Ms. Cindy Dietz, CB Services Directorate, Commercial (410) 436-4427 or DSN 584-4427, or email ckdietz@apega.army.mil.

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## FACILITIES

The old *aperture card production facility* in E5027 had its final inspection for de-certification. All hazardous material was removed, all non-hazardous materials disposed of properly, and all outstanding questions resolved. The remaining set of aperture cards and the drawing vault were turned over to the Command's Historical Office.

The American Association for Laboratory Accreditation completed their audit of the *Chemical Agent Standard Analytical Reference Material (CASARM)* quality system at SBCCOM. The audit included all aspects of the CASARM system. At the outbriefing, the auditor stated that the program had the most well conceived, developed, and implemented quality systems he had ever audited. Members of the Research and Technology Analytical Team, Chemical Transfer Facility, and CASARM Quality Assurance Team have done an outstanding job of maintaining their respective portions of this program.

The Gillette Company selected the *Molecular Engineering Team* as the “*3<sup>rd</sup> laboratory*” in a toxicology validation study. The assay being assessed is a proprietary *in vitro* cellular assay, which will replace animals in the testing of compounds for irritant properties.

The groundbreaking ceremony for the *Aberdeen Chemical Agent Disposal Facility* was Saturday, June 26<sup>th</sup>. It is a full-scale pilot facility built to safely dispose of the 1,623 tons of mustard agent located at the Edgewood Area. As part of the ceremony, the facility was dedicated to the late John B. Samuel (1945-1996), a research chemist who devoted his career to studying alternatives to incineration to destroy the mustard agent stockpile, and championed the cause of safe chemical agent handling during his 28-year career at Edgewood. Dr. Samuel not only investigated alternative solutions to incinerating the stockpile of bulk mustard agent but he co-wrote test plans associated with the compatibility of weapon propellant and chemical agents in response to Congressional concerns about storage stability of chemical weapons at other stockpile sites. He worked on a team that investigated alternatives to incineration, which evolved into the Program Manager for Chemical Demilitarizations' Alternative Technologies Program. It was this work that led to naming the building in his honor.



# BRIEFS

**SBCCOM TEAM COMPLETES HIGH PRIORITY U.S. ARMY FORCES SOUTHERN COMMAND (USARSO) MISSION AHEAD OF SCHEDULE AND UNDER BUDGET.** In March, SBCCOM (Natick Soldier Center) completed the mission to strike and pack three Sprung, 30-9 Shelters located at Fort Kobbe, Panama. The 30-9 fabric structure is 30 feet wide by 120 feet long and used as a field warehouse. The mission was to meet Panama's treaty demobilization requirements. SBCCOM teamed with USARSO units and industry subject matter experts, accelerating the process; the program was completed 10 days early and \$25,000 under budget. The shelters will be shipped to Puerto Rico where they will be retrofitted and reassembled later in the year by the Light Area Maintenance Shelter Team.

**NATO 50TH SUMMIT SUPPORT.** In April, NATO held its 50<sup>th</sup> Anniversary Summit meeting in Washington, DC. The three-day summit of 19 NATO presidents and prime ministers, along with the NATO Secretary-General and the Heads of 23 other governments and nearly 2,000 delegates was Washington's largest gathering of such high-ranking foreign dignitaries. During that time Messrs. Ray Jablonski and Douglas Sommerville of the Center's Research and Technology Directorate and Mr. Michael Myirski of the Command's CSEPP supported the U.S. Army's Chemical Biological Rapid Response Team (CBRRT) by providing a "reach back" hazard prediction capability at the Edgewood Area Operations Center. The support was provided on a 24 hours basis with additional assistance from a Defense Threat Reduction Agency (DTRA) liaison. This is the first "national security event" which involved collaboration between SBCCOM and DTRA modelers and was organized to minimize the possibility on contradicting hazard prediction information being provided to the CBRRT, CBIRF, FBI, and other agencies during these types of events. Hazard prediction plots were forwarded to the CBRRT event headquarters via the Essential Technologies Emergency Information System. A real-time information/chat internet link also existed with DTRA personnel using Microsoft NetMeeting. The Command's Technical Escort Unit conducted specialized training in preparation for our support to the NATO 50th Summit. This training was done in conjunction with the U.S. Secret Services' Technical Support Division, the FBI's Hazardous Material Response Unit, and the Washington, DC, Fire Department.

**ARMY ACHIEVES MAJOR CHEMICAL WEAPONS CONVENTION (CWC) MILESTONE.** The CWC, which entered into force on April 29, 1997, required State Parties to destroy excess components of binary weapons within two years. The Program Manager for Non-Stockpile Materiel, working closely with Hawthorne Army Depot, Day and Zimmerman Hawthorne Corporation, and Safety-Kleen (Aragonite), Inc., achieved this significant CWC mandate on March 16<sup>th</sup>. This effort included the destruction of 201,728 M687 binary projectiles, stored at Umatilla Chemical Depot. Due to the success of this work and to effectively use resources, permission was obtained to destroy the remaining 56,820 items. This operation will be completed in July. Other binary components, stored at Pine Bluff Arsenal, will be destroyed prior to 2007, as required by the CWC. SBCCOM's Army Center for Treaty Implementation and Compliance worked hand in hand with the Program Manager for Non-Stockpile Materiel to achieve this milestone.

## AND THIS LITTLE SANDWICH WENT TO MARKET

### *Natick Researchers Win National Award for Successful Development and Technology Transition of Shelf-Stable, Ready-to-Eat, Sandwich-Type Items*

**N**atick researchers Jack Briggs, Dr. Andre Senecal, and Michelle Richardson have received a **1999 Federal Laboratory Consortium (FLC) Award for Excellence in Technology Transfer**. The Natick team was recognized for developing and transitioning for commercial use the shelf-stable, ready-to-eat, Mobility Enhancing Rations Components (MERC) in military rations. These sandwich-type items have the appearance of freshly prepared foods, can be eaten without utensils, and require no preparation. The items can be safely maintained at room temperature for up to three years prior to consumption.

**M E R C** addresses the need for a scenario-driven operational ration component system that supports highly-mobile and forward-deployed



*These items have the appearance of freshly prepared foods, can be eaten without utensils, and require no preparation.*

troops and is suitable for arctic, jungle, desert, mountain, and urban areas under all climatic conditions. This system will take advantage of major advancements in food preservation and stabilization technology to increase soldier acceptance and consumption as well as soldier mobility. The MERC also simplifies shipping, distribution, and handling. Commercial versions of the items could be used by campers, hikers, mountain climbers, hunters, fishers, or anyone else in need of a convenient, lightweight, nutritious meal.



*Left to right: Dr. Andre Senecal, Michelle Richardson, and Jack Briggs are the proud recipients of a 1999 FLC Award. The team worked on the development and transition of MERC, which are shelf-stable, ready-to-eat, sandwich-type items.*

The team worked under two Cooperative Research and Development Agreements (CRDAs), transferring Natick's technology to industry, leveraging technology advances made by these companies, and finally, developing and field testing the MERC. Natick's use of technology transfer via CRDAs under the Domestic Technology Transfer Program is in sync with Congressional goals for strengthening the U.S. industrial base.

The FLC Award for Excellence in Technology Transfer was established in 1984. Every year, the FLC recognizes laboratory employees who have accomplished outstanding work in the process of transferring a technology developed by a federal laboratory to the commercial marketplace. Recipients of the awards have been deemed by a panel of technology transfer experts, including representatives from industry or state and local government, to have demonstrated uncommon creativity and initiative. Individual and team contributions must be recent and must have provided significant benefits to industry or state

and local government. This year, the Natick team was one of only 15 recipients nationwide.

POC: Mr. Jack Briggs, NSC, Combat Feeding Program, Commercial 508-233-4561, DSN 256-4561

POC: Robert Rosenkrans, Natick Soldier Center (NSC) Office of Research and Technology Applications (ORTA), Commercial (508) 233-4928 or DSN 256-4928.

## COOPERATIVE R&D WITH INDUSTRY AND ACADEMIA

**R**ecent significant achievements and actions in our continuing commitment to *technology transfer* follow:

### *Northeastern Maryland Technology Council (NMTC)*

Mr. Roy Albert briefed a Cecil County Teacher In-Service Seminar Program entitled “Americans for The Competitive Enterprise System” the evenings of March 24<sup>th</sup> and April 28<sup>th</sup> and Ms. Brenda Eckstein on May 12<sup>th</sup>. The evening program is sponsored by the Northeastern Maryland Technology Council (NMTC) and will include three teacher teams who visit nine employment areas over 3 months. This program is designed to help the teachers understand what types of personnel are needed in this area of Maryland, and help them educate local students for the future workforce so America can be competitive in the world market. Mr. Albert’s briefing included who SBCCOM is, what are its missions, and the capabilities of the Edgewood Center, unique facilities, and present interface with academia and industry in the Northeastern Region of Maryland. Other briefings included ARL, APG Science and Technology Board, NMTC, and “Schools to Career Grant.”

Visit the Northeast Maryland Technology Council web site at: [www.geosol.com/nmtc/index.htm](http://www.geosol.com/nmtc/index.htm)

### HEAT CENTER

Mr. Albert also attended the Fire Fighting Task Force Apparatus Conference in March at the HEAT Center in Aberdeen. This conference was

sponsored by the Mid Atlantic Technology Applications Center/NASA, Federal Laboratory Consortium, U.S. Army Research Laboratory, and the Aberdeen Test Center. It is the first step in preparing requirements for the equipment that fire fighters will need in 2010 to 2020. The group also addressed what can be done to modify present equipment or soon-to-be-purchased equipment to meet future needs. Recently purchased fire apparatus may still be around in 2020. After thinking out of the box and developing 30 areas of concern, future efforts will be devoted to safety, pumping, and power engines. Included in the safety area are CB sensors and crew protection.

### *APG Science and Technology Board*

In April, APG Science and Technology Board, the Commander of APG, and local elected officials, the presidents of Harford and Cecil community colleges, and the chairman of the Northeastern Maryland Technology Council signed the charter linking the installation with neighboring communities, academic institutions and businesses to develop technical initiatives and promote high-technology growth in the region. The Science and Technology Board provides a focal point and gateway for colleges and businesses to access APG’s technology resources, technical leadership and applied technology base. This provides opportunities for cooperative endeavors between tenant organizations at APG, state and local governments and academia and private-sector companies.

The APG Science and Technology Board has a web site at: <http://stb.apg.army.mil>.

### ***Cooperative R&D Agreement (CRADA)***

Three CRADAs are under development with the following companies: Battelle, Quicksilver Analytic, and Majesco.

### ***Test Services Agreement (TSA)***

A TSA was signed with Barringer Instruments, Inc., for chemical characterization testing of their IONSCAN; testing started in March.

### ***Patents***

In March, Mr. Sajonia C. Blake, Geo-Centers, Inc., met with Mike Goode (ECBC), Debbie Menking (STC) and Joe Traino (STC) about their new assay tube device and methodology. This invention has excellent licensing potential, and STC has agreed to pay for the patent, which will be owned jointly by Edgewood and STC.

### ***AMC Field Assistance in Science & Technology (AMC-FAST)***

Mr. Albert briefed the new AMC FAST Advisors who are headed for the CINCs. He presented ECBC capabilities, products, and facilities that can react to their requirements when they are in the field.

POC: Mr. Roy C. Albert, Office of Research and Technology Applications, DSN 584-4438, commercial (410) 436-4438, email address is roy.albert@sbccom.apgea.army.mil

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### **TECHNICAL INDUSTRIAL LIAISON**

This office scheduled a series of seminars for the SBCCOM workforce to provide information regarding the capabilities of our on-post contractors. The ultimate goal of these seminars is to ensure that we are making use of these contractors in the most optimal way.

In April, SciTech presented a seminar to the workforce. SciTech is a small, disadvantaged (8a)

business that does 90% of its business in the CB area. They have a mission support task order contract with our Research and Technology Directorate. Their other customers include Program Director for Chemical Demilitarization, Army Environmental Center, the Center for Health Promotion and Preventive Medicine, the APG Garrison, and Defense Threat Reduction Agency. The scope of their work includes laboratory management, field monitoring, training and hazardous waste management. Of particular interest were the historical searches that SciTech has done, which have produced two reports: one detailing the various weapons that have been tested at APG, and the other providing a history of biological warfare research conducted at APG since its beginning. Hard copies of SciTech's presentation are available from this office.

In April, EAI Corporation also presented a seminar to the workforce. EAI Corporation is a local small-business with over 100 employees dedicated to providing quality service to the NBC community. EAI is a registered ISO 9001 Company and recently became the first Maryland corporation to receive a Contractor Performance Certification Program (CP)<sup>2</sup> certificate. EAI currently has a task order contract with R&T Directorate in the functional areas of (1) General Research and Investigation, and (2) Detection Services. They are also being funded by PM-Non-Stockpile, the Arms Control & Disarmament Agency (for treaty research), and the Department of Justice's Center for Domestic Preparedness.

In June, Geo-Centers, Inc., presented a briefing to the workforce. Geo-Centers provides research and product development services in support of the U.S. military. They are significantly involved in the CB defense program. Currently, approximately 50 Geo-Centers employees are working here on post and supporting CB Filtration, Molecular Engineering, Analytical Chemistry, Toxicology, and CB Point Detection.

### ***Small Business Innovation Research (SBIR)***

The CBD 99.1 proposal evaluations have been completed, and the Army winners are as follows:

- CBD99-101--Computational Fluid Dynamic Modeling of Agent Transport through Protective Clothing Systems (1)

- CBD99-102--High Speed, Rugged Tuner for Low Costs, Standoff Chemical and Biological Detection (2)

- CBD99-103--Modular Microfluidic Packaging (2)

- CBD99-104--Nanoscale Electrochemical Biosensors (2)

Two contractors (Foster-Miller, Inc./Topic A98-144, and Mesosystems Technology, Inc./Topic A98-146) were sent letters inviting them to submit Phase II proposals. The invitations were issued based upon their performance on the current Phase I contracts.

A call for topics for the CBD section of the 00.1 DOD SBIR solicitation has been received. This solicitation will contain 18 CBD topics, six each from the Army, Navy, and Air Force. This office is canvassing R&T and Engineering Directorates for potential topics, which were to be forwarded to the SBIR Technology Area Chief for CB Defense in June.

For a special issue the National Defense Magazine chose the Aerosol Germ Collector designed and developed by InnovaTek, Inc., under an SBIR contract with ECBC's Aerosol Sciences Team. This project was selected by a committee formed by SBCCOM's Dr. Ed Stuebing, and included the Naval Surface Weapons Center and Dugway Proving Ground. From the hundreds of innovative products developed by small business, National Defense Magazine selected only 24 items to be included in this special feature.

POC: Mr. Marvin Hohenstein, Corporate Enhancement Team, Commercial (410) 436-2855 or DSN 584-2855

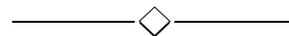
### ***Broad Agency Announcement (BAA):***

Since Edgewood BAA 99-1 opened, we have received 10 white papers/proposals, along with numerous other inquiries. The BAA will remain open indefinitely and be edited as necessary.

### ***DISTINGUISHED SERVICE AWARD***

In April, Major General Doesburg presented the SBCCOM Distinguished Service Award to Dr. Bill Richardson. Dr. Richardson was recognized for his outstanding contributions to the creation of the Domestic Preparedness Program and to the development of the CB 2010 Study. Dr. Richardson was also applauded for his efforts in the formation of the NBC Industry Group, a growing organization of companies who do business in the NBC area. The award presentation was conducted during the April meeting of the NBC Industry Group, which was held at Edgewood in the Gunpowder Club.

POC: Mr. Ronald P. Hinkle, Technical Industrial Liaison, DSN 584-2031, commercial (410) 436-2031, or email [rphinkle@apega.army.mil](mailto:rphinkle@apega.army.mil).



### ***Combined Warrior-Technical Council New STO Review***

In June, the Director, Natick Soldier Center participated in subject review at which eight new NSC STO proposals were considered. Four were accepted as new Army STOs, one proposal scheduled for 01 start was rejected this year but invited back for reconsideration next year, one proposal was requested back in two weeks for further review pending acceptance, and one proposal was rejected. Many positive comments on this quality and importance of NSC proposed STOs were made, and DOE representation proposed funding a nano-technology related effort to be performed by NSC.

***Natick Soldier Center Awards DOD's First  
Hub Zone Contract***

The HUB ZONE Program, which is included in the Small Business Reauthorization Act of 1997, is a program designed to stimulate economic development and create jobs in urban and rural communities by providing contracting preferences to small business located in and hiring employees from historically underutilized business zones.

The Natick Soldier Center signed the first HUB ZONE contract in the DOD, with Production Products, St. Louis, MO. The contract was awarded in May in the amount of \$788,557 for recirculation filter assemblies and gas and recirculator filter elements to be used on the Air Forces' Chemically Hardened Air Transportable Hospital and the Army's Chemical Biological Deployable Medical Systems.

POC: Mr. Philip Brandler, Commercial (508) 233-4700 or DSN 256-4700

## **1998 PATENT REPORT**

### ***Patents Issued***

1. Patent Number 5,834,477, Opiate Analgesic Formulation with Improved Safety, Issued 11/10/98; Inventor: Robert J. Mioduszewski.
2. Patent Number 5,813,278, Projectile Grenade Launching System Tester, Issued 9/29/98; Inventors: Paul G. Schabdach, Irving F. Barditch.
3. Patent Number 5,811,059, Automated, On-demand Ion Mobility Spectrometry Analysis of Gas Chromatograph Effluents, Issued 9/22/98; Inventors: James A. Genovese, Charles S. Harden, A. Peter Snyder.
4. Patent Number 5,792,976, Rapidly Deployable Volume-displacement System for Restraining Movement of Objects, Issued 8/11/98; Inventor: James A. Genovese.
5. Patent Number 5,763,737, Acid-catalyzed Oxidation of S-(2-diisopropylamino) Ethyl Methylphosphonothioate Ion with Hydrogen Peroxide, Issued 6/9/98; Inventors: Yu-Chu Yang, George W. Wagner.
6. Patent Number 5,756,995, Ion Interface for Mass Spectrometer, Issued 5/26/98; Inventors: Waleed M. Maswadeh, A. Peter Snyder.
7. Patent Number 5,730,765, Super Toxic Analytical Glove Box System, Issued 3/24/98; Inventors: Charles E. Henry, Monica J. Heyl, Dennis J. Reutter.
8. Patent Number 5,728,927, Controlled Multi-purpose Chemical Agent Vapor Generator System, Issued 3/17/98; Inventor: Kwok Y. Ong.
9. Patent Number 5,719,323, Method of Measuring the Decomposition of a Gaseous Material under Controlled Temperature and Time Conditions, Issued 2/17/98, Inventor: Michael W. Ellzy.

10. Patent Number 5,711,916, Air-transportable Modular Analytical Laboratory, Issued 1/27/98; Inventors: Patti J. Riggs, Monica J. Heyl, Rodney D. Hudson, Dennis J. Reutter.

11. Patent Number 5,710,358, Oxidative Detoxification of Phosphonothiolates and Phosphonothioic Acids, Issued 1/20/98; Inventors: Yu-Chu Yang, John B. Samuel, William T. Beaudry, Linda L. Szafraniec, Clifford A. Bunton.

### *Patents Filed*

1. "System and Method for Remote Detection of Hazardous Vapors and Aerosols," Inventor: Dennis F. Flanigan.

2. "Propellant Based Aerosol Generating Device and Method of Use," Inventors: Raymond J. Malecki, William G. Rouse, Daniel J. Hartman, Samuel Morgan, Tom Mills.

3. "Device for Integrating Chemical Detectors and Chemical Detection System," Inventors: Mark S. Schlein, James R. Orndoff, Peter J. Schlitzkus, Vincent K. Younger, Stephen J. Colclough.

4. "Solid Particle Aerosol Belt and Dissemination Method," Inventors: Raymond J. Malecki, William G. Rouse, Michael Orr, Daniel J. Hartman, Samuel Morgan.

5. "Advanced Chemical-Biological Mask," Inventors: Corey M. Grove, Stephen E. Chase.

6. "Analytical Methodology for Qualitative and Quantitative Determination of O-Ethyl S-(2-diisopropylaminoethyl)Methylphosphonothiolate Vapor," Inventor: Kwok Y. Ong, Jacob L. Barnhouse, Juan C. Cajigas.

7. "Low Concentration Vapor Generation Device and Method," Inventors: David E. Tevault, James H. Buchanan, Leonard C. Buettner, Christopher J. Karwacki.

8. "Portable Containment System for Vapor, Aerosol or Airborne Hazard Suppression of Hazardous Environmental Spills," Inventors: Paul G. Schabdach, James A. Genovese.

9. "Chemical Agent Simulant Training Composition," Inventors: Alan T. Seitzinger, James A. Genovese.

10. "Respirator for Protection Against Biological Hazards," Inventors: Paul D. Gardner, Linda C. Strickler.

11. "Hydrolysis and Biodegradation of the Chemical Warfare Vesicant Agent HT," Inventors: Steven P. Harvey, Linda L. Szafraniec, William T. Beaudry.

12. "Infrared Mueller Matrix Detection and Ranging System," Inventors: Arthur H. Carrieri, Jerold R. Bottiger, David J. Owens, Erik S. Roese.



# INTERNATIONAL COOPERATIVE R&D

## BILATERAL EFFORTS

### *Environmental Data Exchange Annexes (DEAs) with Germany*

The four United States/Germany Environmental DEAs, A-94-GY-1311, Hazardous Materials, Material Substitutes, and Air; A-94-GY-1520, Soil; A-94-GY-1521, Water; and A-94-GY-1522, Demilitarization and Disposal of Conventional Munitions, were scheduled to expire in April. At our request, the AMC International Cooperative Programs Activity (ICPA) processed a one-time, 6-month extension for the DEAs. In the meantime, we revised the Delegation of Disclosure Authority Letters (DDLs) for the DEAs and entered them into the International Agreements Tracking System, along with updated Coordination Worksheets for the DEAs. In April we scheduled an Integrated Product Team (IPT) Meeting, to review the DDLs with the Assistant Project Officer, the Legal Officer, and the Foreign Disclosure Officer. We also forwarded the DDLs to the other Commands who provide Technical Project Officers for the DEAs. Once comments are received and resolved, the DDLs will be forwarded to ICPA for further coordination and approval of a 5-year extension to April 11, 2004.

### *Data Exchange Agreement (DEA) on Food Preparation with Germany*

In April, the Natick Soldier Center hosted a representative of the German Bundesamt für Wehrtechnik und Beschaffung (BWB) under the auspices of DEA 1133-Food Preparation, Preservation and Processing. The DEA is a mechanism for the United States and Germany to share technical information pertaining to science and technology for combat rations. A detailed briefing on the German subsistence program was provided by the BWB rep to the Combat Feeding Program (CFP) Team. The BWB rep received technical briefings on CFP projects in the areas of innovative processing technologies (e.g., Pulsed

Electric Field, Microwave Sterilization and High Pressure Processing); Interactive Packaging, Horizontal Form-Fill-Seal Packaging technology, Sensory Evaluations and Consumer Acceptance Studies. The BWB rep also discussed nutrition issues with personnel from USARIEM. Specific areas of technical exchange to benefit both BWB and the CFP have been identified. A reciprocal visit to Germany by CFP team members is being planned for October 1999.

### *U.S./France NBC Defense Working Group*

Dr. John Ferriter, U.S. member to the U.S./FR NBC Defense Working Group, presented the recent activities and accomplishments of the Group at the 1999 Executive Country Review. The status of the four DEAs with France concerning chemical and biological defense was reviewed, as well as the progress made under the project agreement on laser standoff chemical detection. Dr. Kitchens was very impressed with the level of activity of the working group and was very pleased that they were developing a roadmap for planned exchanges. The Working Group was commended on its accomplishments and no changes were suggested.

### *Data Exchange Agreement (DEA) on Chemical Detection with GE*

In June, Dr. Alexander Grabowski from Germany visited the Edgewood CB Center to discuss decontamination methods and conductive coatings. The visit was under the auspices of DEA-A-68-GE-1116, and Mr. Brain MacIver was the Center's point of contact.

### *Information Exchange Annex with SN on Chemical and Biological Defense*

Drs. Lee Fook Kay, Koh Cheng Heng, and Leong Weng Yuen of the Singapore Defense Science Organization's National Laboratories Applied Chemistry Lab visited SBCCOM/Edgewood CB

Center in April. Dr. Lee is the head of the Applied Chemistry Lab, which is Singapore's and the military's only laboratory for chemical and biological defense related research. The primary purpose of the visit was to acquaint Dr. Lee and his staff on the current research and development interests of the Edgewood CB Center, and to begin to formulate ideas for cooperation and exchange in preparation for the signature of the Information Exchange Annex with Singapore (expected in June). The IEA will cover many aspects of chemical and biological defense, and will focus on those activities where there is an overlap of interest. In addition to visiting the ECBC, the SN delegation also visited MRICD, MRIID, and the Natick Soldier Center.

Of principal note from the visit was the discussion on water monitoring. SN has currently developed an automated laboratory device to sample and detect (via SPME and GC) chemical agents in water. There is considerable interest in the United States on this technology, and discussions are currently being held to determine if it is feasible to develop a PA (under the US/SN TRDP MOU) in the area of chemical and biological agent water monitoring. Dr. Lee invited a representative from the water monitoring group to visit Singapore in the September timeframe and spend several days in the water monitoring lab to evaluate their current capabilities.

#### ***Cooperative Project Agreement (PA) on Environmental Effect with CWA***

In May, Dr. George Famini briefed MG von Kaenel and MG Blixt, the United States, and Swedish Senior National Representatives (Army) on a prospective PA between ECBC and FOA/NBC. The proposed PA would focus in the area of environmental toxicology and would leverage our current and past efforts with a new effort underway in Sweden, which is looking at aquatic toxicity and fate of chemical warfare agents, their precursors and breakdown products, and toxic industrial compounds. Both the United States and Sweden delegations were very supportive of the proposed agreement, and concurred that this, although not a "hardware

development" PA, would be a significant effort that would greatly enhance cooperation among the two countries. A tentative timeline was presented that suggests a Mar/Apr 00 signature/implementation. Both MG von Kaenel and COL Westrip (ICPA/AMC) indicated that they would assist in expediting the U.S. staffing of this PA, for a possible implementation date of Nov/Dec.

## **MULTILATERAL EFFORTS**

### ***Semiannual PO/RO Meeting***

The semi-annual Program Officers/Requirements Officers meeting of the US/UK/CA MOU on CBD was held at the Defence Research Establishment, Suffield, CA, in March. Messrs. Michael Parker, Joseph (Jim) Zarzycki, and George Famini attended the meeting from Edgewood, and were joined by COL G. Platoff from the medical community, and LTC Paula Lantzer and Dr. Charles Kirkwood from the Chemical School. The meeting reviewed current cooperation under international task forces and working group, and identified new areas for future efforts. The POs developed a comprehensive business plan which outlines the areas of CB defense that are considered critical over the next 3-5 years. Several cooperative development programs were discussed at some length, including the current activities in JCAD/MCAD/LCAD, the potential joint development of the CS riot control grenade, and the need for a joint vaccine acquisition strategy. An initial effort to determine status and alignment of requirements for warning and reporting of NBC information was also authorized. The next meeting of the POs/ROs will be in September at Brooks AFB, San Antonio, TX.

### ***US/UK/CA Memorandum of Understanding on Research, Development, Production and Procurement of Chemical and Biological Defensive Materiel Semiannual PO/RO Meeting***

The Edgewood CB Center will host the next meeting of the Program Officers/Requirements Officers (PO/RO) in September at Brooks Air

Force Base, San Antonio, TX. In preparation for this meeting, Mr. Zarzycki, U.S. Program Officer, will host a U.S. Position Meeting in August, to review the progress of the MOU. He will be briefed on the ongoing International Task Forces (ITFs); the Test and Evaluation Working Group (WG); the Antibody Development WG; a report from the Medical Countermeasures Team (Alternatives to Vaccines); possible International Cooperation on Generic Applications to Genetic Engineering; Decontamination Capabilities; Site Remediation and Decontamination; Joint Chemical Agent Detector/Man Portable Chemical Agent Detector Cooperation; and the Joint Service Aviation Mask. Agendas have been developed for the Position Meeting and the meeting at Brooks AFB.

***Vaccine Project Arrangement Under the CBR Memorandum of Understanding (MOU)***

A US/UK/CA meeting was held in June at the PM-Joint Vaccine Acquisition Program offices at Fort Detrick to discuss the current status of the tripartite vaccine acquisition process and progress made toward developing a Vaccine Project Agreement that would merge the UK and CA efforts into the US efforts. The three countries agreed that a Project Agreement with the United States as the lead country, contracting on behalf of the other two countries, is the proper approach. They agreed that each vaccine should be the focus of separate Project Agreements, with smallpox being the test case to the agreement development

Dr. George Famini met with LTC Don Buley of the JPO BDS and Mr. John Anderson of the PM JVAP to discuss cooperation with the United Kingdom and Canada in terms of a trilateral vaccine acquisition strategy. All three countries agreed to consider a cooperative research, development and acquisition program under the new US/UK/CA Chemical, Biological and Radiological Defense MOU. An initial U.S. strategy for negotiating with the UK and CA has been prepared, which identifies U.S. needs, benefits to the United States in engaging in this multinational program including cost savings, and risks associated with an increased number of

participants. Once completed, the draft arrangement and supporting documentation will be submitted to the Joint Program Manager for concurrence. Issues that still need to be addressed include level of CA/UK financial involvement, incorporation into the milestone decision process, and overall trilateral management of the TVAP program.

***CBD MOU TEWG***

Mr. Alan Zulich, Edgewood CB Center, met with Dr. Camille Boulet, DRES, CA, in May, to attend the combined JTIWG/TEWG meeting as the Army Tech Base Representative. The meeting will be held with Canadian and British government representatives to plan international field trials for biological detection equipment. Meeting is sanctioned under a U.S./UK/CA MOU for Chemical, Biological, and Radiological Defense.

***North Atlantic Treaty Organization (NATO) Project Group 31***

In May, Dr. Joseph DeFrank, Edgewood CB Center, met with Dr. Michel Gervaise, France, to chair the *ninth meeting of NATO Project Group 31 (PG31 - Non Corrosive, Biotechnology-Based Decontamination for CBW Agent)* at the CEB Test Facility. The PG.31 meeting included both scientific interchange between member nations and agents trials with enzyme-based decontaminants. The technology being developed by PG.31 is of potential critical mission relevance to the Edgewood CB Center and supports the Enzymatic Decontamination Defense Technology Objective.

***The Technical Cooperation Program (TTCP) Chemical, Biological, and Radiological Defense Group Meeting***

In June, the National Representatives met at the Aeronautical and Maritime Research Laboratory, Melbourne, Australia. In preparation for this Meeting, Dr. Savage, U.S. National Representative, hosted a U.S. Position Meeting in May to review the progress of Technical Panels (TPs) and Action Groups (AGs), and to review the

status of actions tasked at the June 1998 CBD Meeting. Current TTCP activities include TPs on Medical Countermeasures Against Biological Agents; Hazard Assessment; Detection of Biological Agents; and Low Burden Integrated NBC Protective Clothing; and AGs on Gene Probes; Radiological Hazards; and Remediation of Primary Data Gaps in Toxicology. All TP and AG representatives have been tasked to report the success of their TP and AG against previously established metrics. The metrics include timeliness of reporting, cost benefit of TP or AG, capability gains due to the TP or AG; client response to each deliverable; scientific quality; and future program of TP or AG.

### ***TTCP Establishes Web Site***

The Washington Deputies of The Technical Cooperation Program (TTCP) announced the formation of a home page for general information concerning TTCP at:

<http://www.ttcp.osd.mil>

### ***Science and Technology Cooperation***

In January, the AMC Principal Deputy for Technology and the Vice President (Technology), German Federal Office of Military Technology and Procurement (BWB), signed Terms of Reference for the AMC/BWB Science and Technology Working Group. Integrated Technology Teams will be established in various technology areas to execute bilateral S&T projects. COL Garcia, Commander of the U.S. Army Research, Development and Standardization Group, Germany, and Herr Goebel, Chief, Army Materiel Section, GE Liaison Office for Defense Materiel, who are the national Heads of Delegation in the S&T Working Group recently exchanged lists of potential technology areas for new bilateral S&T development work. A comparison of the GE and U.S. lists shows apparent matches in eight technology areas: Chemical/Biological Protection; Tank-Automotive; Mine/Countermine; Soldier Systems, Simulation; Information Systems C4I; Intelligence and Electronic Warfare; and Aviation. The United States was provided apparent matches

in the first four of the eight technology areas above and was asked to provide a brief description of the status for each listed technology applicable to SBCCOM/ECBC activity and the goal of any future work with Germany to develop that technology. We provided information papers on Biodetection, Decontamination, Bioremediation, and Aerosols. A technology description for CB Mass Spectrometry will also be provided as soon as it is available.

### **VISITS**

Three members of the Japanese Ground Self Defense Force visited three organizations at Edgewood in April. LTC Liwood Wentworth from the 9th TAACOM escorted COL Katuichi Kase, LTC Hiroshi Shiomi, and LTC Toshihiko Nishioka to SBCCOM, CHPPM, and MRICD. Currently, there are two U.S./Japanese Data Exchange Agreements.

Mr. Zarzycki, Edgewood CB Center Technical Director, Dr. George Famini, and Mr. Pete Stopa visited several organizations of the Polish Ministry of Defense related to chemical biological defense research and development in May. The group met with Professor Santarek, Director of R&D for the Ministry of Defense. He reaffirmed his commitment to an active collaboration with the United States in the area of CB defense. The visit to the Ministry of Chemistry and Radiometry focused on a presentation on the Polish smoke and obscurant research program. During the visit to the Veterinary Research Center, Mr. Zarzycki gave a presentation of U.S./Polish cooperation in honor of their 50<sup>th</sup> anniversary. Finally, a visit was made to the Military Institute of Hygiene and Epidemiology for discussions on Polish efforts in toxicology. At each location visited, the same themes were prevalent: a) the Polish were very interested in sending scientists to the Edgewood Center under the ESEP MOU, and b) they are interested in extending collaboration beyond information exchange.

A U.S. Delegation from the Office of the Assistant Secretary of Defense, Strategy and Threat Reduction, Threat Reduction Policy, Directorate

for Non-Proliferation recently traveled to the Netherlands (TN), Germany (GE), Sweden (SW) and the United Kingdom (UK) to discuss biodefense declaration trigger issues. We were requested to provide information on the cooperative CBW research and development programs currently existing with these nations and the degree to which declaration/disclosure of these programs could affect cooperations/collaboration. The Command/Center cooperates with the UK through the CBD Group of the TTCP and the U.S./UK/CA MOU on CBD. With TN, GE, and SW cooperation takes the form of DEAs and Project Agreements.

MAJ Marijo Sambolec, CPT Mirke Czukor, CPT Tomica Sabolic and SGT Dusko Badovinac of the Croatian NBC Corps visited under the Military to Military Contact Program. They were provided

the SBCCOM overview, a Domestic Preparedness briefing, and a windshield tour of the post. CPT George Spence of the Maryland National Guard was their escort officer. During subsequent discussions with a representative of the National Guard, we were advised that the Croatians were impressed with the visit, the information provided and the level of interaction provided by our personnel.

POCs: Dr. George R. Famini or Ms. Juanita M. Keesee, International Programs Office, Commercial (410) 436-2552/5376, DSN 584-2552/5376, email [george.famini@sbccom.apgea.army.mil](mailto:george.famini@sbccom.apgea.army.mil) or [juanita.keesee@sbccom.apgea.army.mil](mailto:juanita.keesee@sbccom.apgea.army.mil).

## NATICK AND RUSSIAN SCIENTISTS WORK TOGETHER TO IMPROVE SOLDIER PROTECTION

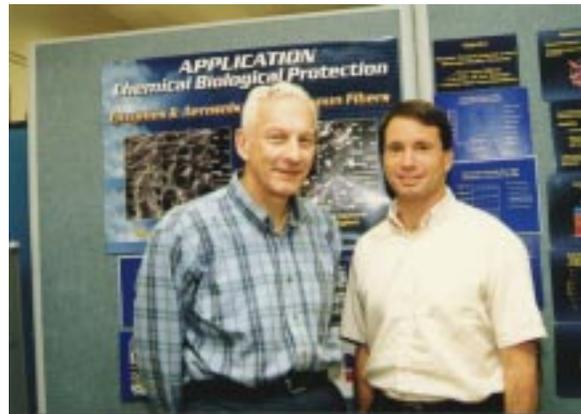
**F**or decades, the United States and the former Soviet Union feared and kept secrets from one another. Now, with the Cold War long since thawed, the United States and Russia are working together to advance state-of-the-art chemical protective garment evaluation techniques.

Natick scientists Dr. Don Rivin and Dr. Phil Gibson of the Material Science Team at the Natick Soldier Center are collaborating with scientists Dr. Andrei Berezin and Dr. Alexander Nadezhdinskii at the world-renowned General Physics Institute in Moscow. The institute is directed by Nobel Prize winner Alexander Prokhorov and performs research in such areas as lasers, spectroscopy, photoelectronics, and plasma physics.

Scientists at the institute designed a diode laser spectrometer (DLS) for use in a vapor permeation system developed by Dr. Rivin, Dr. Gibson, and fellow Natick scientist Cy Kendrick.

According to Dr. Gibson, “The diode laser emits a beam of light through the measurement cell to a detector. The amount of light absorbed is proportional to the concentration of water or other chemicals that may be present. Protective clothing systems for industrial, military, and agricultural applications require materials with barrier properties against toxic chemicals in vapor, liquid, and aerosol form. For many situations, the materials must also have high permeability to water vapor to allow evaporative cooling for the people wearing them, otherwise the protective clothing systems impose an intolerable thermal burden upon the user.”

Dr. Gibson continued, “The scientists are working together to find convenient and accurate laboratory vapor permeation test methods, which are needed to develop and test new materials for protective clothing. The eventual objective is to determine



*Dr. Don Rivin, left, and Dr. Phil Gibson in the research laboratory in Natick.*

the concentration of multiple gases of various compositions, including water vapor, to create a vapor permeation apparatus capable of measuring multicomponent steady-state and transient mass transport across various protective membranes and membrane laminates.”

The effort was funded by SBCCOM and the Army Research Office (ARO), which also played a role in bringing the scientists together.

According to Dr. Rivin, “This collaboration is the result of good communication and cooperation within the U.S. Army, in that the Moscow and Natick scientists were introduced by ARO’s Dr. Mike Strocio, who foresaw areas of potential, mutual interest.”

Dr. Gibson reflected on the experience, “I enjoyed getting to know a scientist from Russia, interacting with him in writing a paper together, and learning about the conditions they must deal with on a daily basis. Sometimes we get discouraged when our roofs leak, or things don’t get fixed, or paperwork slows us down. Our problems pale in comparison to the massive red tape, constant power outages, material shortages, and the low or nonexistent pay the Russian scientists must deal with.”

Dr. Gibson added, "I found that email is truly a blessing to international collaboration. The ability to pass messages back and forth freely during the process of collaborating on a paper and a technical report makes scientific collaboration much easier than if we were limited to phone calls or sending manuscripts by mail."

The collaboration got off to a slightly bumpy start, however. Dr. Berezin got a taste of real Americana when the airline baggage handling system lost one piece of his luggage and damaged another, which contained some electronic components. As a result of the bungling, the first few days of Dr. Berezin's visit to install the diode laser spectroscope were consumed with repairing a tiny solid-state refrigeration module in the sensor. This specialized and sophisticated part was made in the Ukraine, and Dr. Berezin and his friends at Natick had to scurry to find a replacement part. Dr. Berezin was impressed with the fact that such a specialized and sophisticated part was readily available from an electronics manufacturer less than an hour's drive from Natick.



*Dr. Don Rivin, left, and Dr. Phil Gibson make adjustments to the Russian-made test equipment.*

Dr. Gibson noted the irony of the situation, "The tunable diode laser design is inherently rugged and lightweight. Nonetheless, the instrument could not survive the ravages of baggage handlers during the journey from Moscow to Natick!"

The collaboration proved ultimately successful, however. Together, the Russian and American scientists have produced an operational system, as well as a technical report and a journal article. The group also gave a presentation at an international spectroscopy conference.

The work of scientists Dr. Gibson, Dr. Rivin, and Mr. Kendrick underscores Natick's commitment to the

soldier, to scientific collaboration, and to SBCCOM's motto, *Cum Scientia Defendimus*.

*This article was authored by Ms. Jane A. Benson*

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## SENATOR SARBANES AND SECRETARY OF THE ARMY VISIT

**M**aryland Senator Paul Sarbanes, Congressman Robert Erlich, and Secretary of the Army Louis Caldera visited SBCCOM in April. MG Doesburg welcomed them and presented the Command overview. Tours of the computer-aided engineering and stereolithography facility and the Biological Integration Detection System production line were also provided. The party then proceeded through several tenant exhibits before visiting the Wheeled Track Vehicle Facility here at Edgewood and ARL, TECOM, and AMSAA at the Aberdeen area.



Senator Sarbanes invited Secretary Caldera to APG to highlight the installation as an asset to the Army, DOD, and the Nation with its broad, diverse, dynamic, and flexible high-technology workforce, laboratories, and test facilities.

During the closing press conference, Secretary Caldera stated, “clearly, there are some very important capabilities located at Aberdeen that the Army will need today and in the future.”

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### DEPUTY SECRETARY OF DEFENSE VISIT TO SBCCOM AND APG

The Deputy Secretary of Defense, Dr. John J. Hamre, and GEN Wilson visited SBCCOM in April. Dr. Hamre was accompanied by RADM Gregory Johnson, his Senior Military Assistant, and Ms. Pamela Berkowsky, the Assistant Chief of Staff for Consequence Management to the Secretary of Defense. The official party visited the Chemical Agent Storage Yard, the Chemical Demilitarization Training Facility, the SBCCOM Emergency Operations Center, and observed an equipment display presented by the Technical Escort Unit.

Ms. Berkowski, who accompanied Dr. Hamre, the Deputy Secretary of Defense, broke away from the Hamre party upon arrival here at SBCCOM. Mr. Zarzycki escorted her to the Process Engineering Facility, where Mr. Roy Thompson gave her an in-depth tour of the facility. Due to time constraints, she was unable to visit the CB Forensic Analytical Center. She then rejoined the Dr. Hamre party at

the Emergency Operations Center. Ms. Berkowski is the Special Assistant to the Secretary of Defense for Consequence Management. Mr. Zarzycki has sent a follow-up letter to Ms. Berkowski, furnishing her additional information on some of the programs she had questions about during her visit.

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### **VISIT BY THE ECONOMIC DEVELOPMENT ALLIANCE OF JEFERSON COUNTY**

The Economic Development Alliance of Jefferson County, AR, also visited the Edgewood CB Center in April. Included were John Garrison, Board Chair of the Alliance; Jack Jones, Jefferson County Judge; Judi Norton, Senior Vice President for Community Development for the Alliance; and



Joyce Rhodes, Watson Chapel School District. They received overviews of the Joint Service Materiel Group and Domestic Preparedness, toured the Computer Aided Engineering cell, visited the CB Forensic Analytical Center, saw CB Defense equipment, and talked with PM Smoke. The visit concluded with a fly-over of the APG installation.

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### **VISIT OF DEPUTY ASSISTANT SECRETARY OF THE ARMY FOR PROCUREMENT (DASA(P)), OASA(RDA)**

The Natick Soldier Center hosted a visit by the DASA(P) in May. After his participation in the Acquisition Workshop and SPS Ribbon Cutting Ceremony, he received an overview briefing of the RDA Enterprise and briefings on National Protection Center by Natick Soldier Center, Modernization Thru Spares by PM-Force Provider, and a program briefing by PM-Enhanced Soldier Systems. He also toured the Camouflage and Textile Facilities.

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## A PERSPECTIVE FROM THE DEPARTING PRODUCT MANAGER FOR SMOKE/OBSCURANTS

**A**s LTC Christopher J. Parker prepared to depart as the Product Manager for Smoke/Obscurants, Major Mark L. O'Brien asked him if he would share some of his perspectives on the Smoke Program. Here are some of the questions and LTC Parker's responses:

### **What value does smoke bring to the Army?**

That's a question we are often asked, along with questions like "its low tech and easily defeated," and "it does the same thing to us that it does to them." We like to point to the great successes at the National Training Center when smoke sometimes makes the difference between victory and defeat. Yes, smoke will have an unwanted effect if its employment is not properly planned and executed. When used properly however, it acts as a combat multiplier. As far as being low tech, we laugh about being "cheap and easy," "but it works." So what is the value? Its simple, success on the battlefield through preservation of combat power.

### **Is the smoke program over?**

Not at all. We are still extremely active in fielding both large area and Rapid Obscuration Smoke systems. There are new concepts being developed that will eventually transition to the PM Office for development and eventual material fielding. The best known is the Millimeter Wave module for the M56 Coyote and the M58 Wolf. Other new starts will include what I like to call "Distant Smoke." Distant Smoke is a concept that allows us to project in some means an obscurant onto the target. It could be a projectile of some type, or perhaps materials delivered by UAV or other form of robotics, or maybe something we haven't



*LTC Christopher J. Parker*

thought of as yet. There is also some discussion concerning the need for "one way" smokes. In short, there is a lot remaining to be done in the area of Smoke and Obscurants.

### **What do you believe are the biggest challenges facing the smoke program?**

I see several challenges, none of which are insurmountable. I believe the biggest challenge to be the infusion of dollars into the Smoke Tech Base. Currently we are woefully underfunded in this area. The additional smoke concepts we need to fill known material solution voids will be difficult to bring to maturity given the current level of funding for the tech base.

Another challenge is educating the Warfighters on the value of Smoke. My hope is the new M56 and M58 systems, with their improved capabilities and ability to obscure more areas of the electromagnetic spectrum, will generate an increased interest in the value of smoke.

### **How has acquisition reform impacted on how PM Smoke does business?**

When I first arrived at PM Smoke, I was extremely pleased with the organization's embracing of Acquisition Reform. To the Smoke Team Leaders, the Reform was nothing more than common sense and helped them do the smart things they had been wanting to do all along and helped streamline the process. In December of 1996, we were selected to brief the Army Acquisition Executive, Mr. Gil Decker, on what we had done to implement Acquisition Reform. We were able to show him that we had not just implemented it but had in fact returned millions of dollars to the Army from the efforts of the Smoke team leaders.

### **Is smoke an environmental nightmare?**

No. (don't want to set up the possibility to take statement out of context)

The nightmare is the ignorance on the part of a lot of well meaning people. From a "Planet Earth" perspective, fog oil, graphite, and terathalic acid smokes are quite benign. There are significant amounts of environmental data to support the use of these smokes in training across the country. Unfortunately, well meaning Army personnel often fail to state their case adequately when dealing with environmental agencies, fail to strongly advocate the reuse of environmental data already captured, and have a tendency to select environmental alternatives that on the one hand result in a quick closure to the environmental negotiations but on the other hand reduce significantly the effectiveness of training. What is perceived to be the least controversial course of action at the time often unfortunately results in less effective training, additional lengthy and expensive environmental studies, or both.

Yes, there are areas in the environmental arena that require careful attention when dealing with smokes, most notably particulate emission and opacity considerations. Smokes are particulates and without a logarithmic increase in the tech base funding, I can see no way around this. As Mr. Vervier (former Technical Director of the Edgewood CB Center) used to say "physics is physics." Particulates are a challenge at some installations and training areas. They are in no way unique to smoke, and particulate emission trade offs can be made in a variety of installation activities to allow all missions to be accomplished.

### **Aren't the new obscurants too expensive?**

Graphite costs about \$2.68 per pound. When considering a 30-minute smoke mission to obscure IR sensors will consume 1,800 pounds of graphite, the costs do add up. However, when you must factor in the value of the hardware and personnel you protect with that 1,800 pounds, I believe the cost of the obscurant is warranted. I hope some time in the future we are able to develop a single

obscurant material to ease not only the cost of obscurants but also reduce the logistical burden. Until that time, what we have today and will have in the near future are still "cheap insurance."

### **Don't smart weapons make smoke obsolete?**

Not at all. Even our standard fog oil and terathalic acid smokes will attenuate weapon and surveillance systems operating the near infrared region. The M56 and M58 also have graphite smoke that attenuates into the far IR portion of the spectrum. In the near future, we will be adding the Millimeter Wave modules to the M56 and M58 systems, thus providing large area obscuration and protection against radar systems. We already have smoke grenades that operate in the visual, IR, and MMW.

### **What are you most proud of from your tour?**

I think I am most proud of the people in the Smoke Team, which includes our DOD Civilians, contractors, and military personnel. They are continually doing great things and have been for over twenty years now. Since I've been here, they have successfully fielded literally hundreds of M157A2, M1059, M56, and M58 systems and are getting ready to field the Light Vehicle Obscuration Smoke System. There were some people out there that said we'd never field the 56 and 58, let alone use graphite. Well, we're doing both. The Smoke Team successfully entered into Foreign Military Sales and an International Cooperative Test effort. They were the Army Recipient of the DOD Life Cycle Cost Reduction Award. All of this is possible because of the great people on the Smoke Team!

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## LIEUTENANT COLONEL BILLY H. WELCH PRODUCT MANAGER FOR SMOKE/OBSCURANTS

**I**n 1978, LTC Billy Welch was commissioned in Infantry upon graduation from Oklahoma State University. His military training includes the Infantry Officer Basic and Advanced Courses, the Army Command and General Staff College, the Army Logistics Executive Development Course, Training with Industry, and the Advanced Program Managers' Course. His civilian education includes a Bachelor of Science in Physical Sciences from Oklahoma State University and a Master of Science in Business Administration from Boston University.

LTC Welch served tours in the United States, Germany, and Korea. He has held jobs in the 2d Armored Division (Forward), the Armor Center Combat Developments, Heavy Forces Modernization Team, G3 Operations at III Corps, and U.S. Army TEXCOM at Fort Hood, TX. He has also held jobs within the U.S. Army Reserves with the 75<sup>th</sup> Division (Exercise) as Battalion Executive Officer, Brigade Operations Officer, Brigade Executive Officer, and most recently as Commander of the 1375<sup>th</sup> Logistics Support Battalion in Waco, TX.



*LTC Billy H. Welch*

LTC Welch's awards include the Meritorious Service Medal with three oak leaf clusters, Joint Service Commendation Medal, Army Commendation Medal with oak leaf cluster, Ranger Tab, Parachute Badge, and the Expert Infantry Badge.

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## VICE PRESIDENT GORE'S HAMMER AWARD GIVEN TO THE M157A2 SMOKE GENERATOR SYSTEM INTEGRATED PRODUCT TEAM

**T**he National Partnership for Reinventing Government (NPR) notified PM Smoke of its approval of the Hammer Award nomination for the M157A2 Integrated Product Team (IPT). MG John Doesburg, Commander, SBCCOM, presented the award to the M157A2 IPT on July 1<sup>st</sup> at Edgewood. The Award, issued by the National Partnership for Reinventing Government, is the Vice President's answer to yesterday's government and its \$400 hammer. The M157A2 team eliminated the reliance on MOGAS in compliance with DoD Directive 4140.43 on fuel standardization and over 142 sole source parts while efficiently addressing significant safety and operational deficiencies through a full-scale materiel change program. By employing acquisition reform strategies such as Performance Specification, Best Value Contracting, Modernization Through Spares, Teaming/Partnering and Technology Insertion, the M157A2 team achieved a life cycle cost reduction of over \$10 Million with an investment of less than \$400K.



*M157A2 Smoke Generator System Integrated Product Team*

In October 1992, the Product Manager for Smoke and Obscurants (PM-Smoke) initiated a materiel change to the M157 Smoke Generator Set to incorporate critical safety and reliability improvements. PM-Smoke first formed a dedicated IPT that included outstanding engineers and technicians from various government

agencies. The joint IPT and partners in industry introduced several improved and less expensive spare/repair parts for the smoke system saving \$10.2M in operation and sustainment costs with an investment cost of only \$400,000! The IPT asked the customer (the soldier in the field) after Operation Desert Storm to assess the existing system and provide suggestions for improvement. The IPT also examined the existing sustainment data and identified either high demand or sole source spare or repair parts for consideration. The IPT was challenged to consider alternate ways to accelerate the introduction of new spare/repair parts. The IPT selected parts that combined lower procurement costs with operational improvements. The approach was to exhaust the original spare/repair part inventory through attrition and introduce the improved and less expensive replacements. Early introduction of these parts accelerated the organic support and inventory for the future systems. As a result of these improved parts, the overall fleet readiness improved from 60-70 percent to over 95 percent despite a lower



*M157A2 Smoke Generator System*

budget to procure the items.

The team's modernization through spares success and readiness improvements, combined with a technical breakthrough by PM-Smoke resulted in the Department of the Army funding a follow-on materiel change for the M157. The new and

upgraded M157A2 smoke system eliminated the reliance on unleaded gasoline in compliance with DOD directives on fuel standardization directives on fuel standardization while efficiently addressing additional safety and operational deficiencies. The new M157A2 could generate heat for vaporization of large area obscuration using any mid-viscosity fuel. The IPT was expanded to include new partners in industry, and the IPT broadened their investigation of potential modernization through spares candidates. The IPT awarded a best-value production contract based on a performance specification for both complete systems and the spare and repair parts to a small business contractor. The joint IPT was further augmented to include the prime contractor, Minowitz Manufacturing, Inc. Using the performance specification, Minowitz identified commercial off-the-shelf replacements for such components as electrical relays, switches, pressure switches, and light assemblies. These commercial replacements resulted in significant savings.

Members of the IPT firmly agree that modernization through spares works. You can continuously improve your system (operationally and technically) by systematic upgrades through spares, resulting in reductions in total ownership costs.



*M157A2 Smoke Generator*

Readiness of the smoke system has improved and the spare/repair inventory is healthy. The Army After Next needs modernization through spares to succeed and the M157 smoke team has succeeded in doing their part. The team was awarded the 1998 Department of Defense Logistics Life Cycle Cost Reduction Award in October 1998.

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## RECOGNITION

Harford County, Maryland, has selected APG to receive its *1999 Historic Preservation Project Award* for its Old Baltimore archaeological dig. Old Baltimore is a 1660 - 1700 English Settlement that served as Baltimore/Harford County's first permanent seat of local government. APG recently excavated the Old Baltimore site and now seeks to preserve and protect it for the future study of Maryland's early history. The Award recognizes outstanding achievement in historic preservation.

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## POW MEDALS

The SBCCOM, IMMC, Soldier Systems Directorate, received a request from PERSCOM to engrave and ship POW Medals and Purple Hearts for the three Prisoners being held in Yugoslavia. The Medals Assembly Team acted immediately and prepared, engraved, and shipped the items for Christopher J. Stone; Andrew A. Ramirez, and Steven M. Gonzales. The items were overnight expressed to Germany. The Soldier Systems Directorate, Medals Assembly Team was proud to participate in this task.

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## SBCCOM EMPLOYEES RECOGNIZED BY MD STATE POLICE

On May 28<sup>th</sup> a ceremony was held at the Maryland State Police Headquarters to recognize the contributions of the Domestic Preparedness Chemical Weapons Improved Response Program in preparing the police to respond safely and effectively to potential acts of domestic terrorism involving chemical warfare agents. MG John C. Doesburg, Commander of SBCCOM, accepted an award on behalf of the Command. Mr. Randolph Laye and Mr. William Lake each received individual citations for their contributions to the Program and support to the law enforcement community at large.



*Standing, left to right: MG Doesburg, Randolph Laye, William Lake, and Colonel David B. Mitchell, Superintendent, Maryland State Police .*

## ACWA PROGRAM

SBCCOM's Assembled Chemical Weapons Assessment (ACWA) program is among 98 semi-finalists from a field of 1,600 applicants in the *Innovations in American Government Program*. Semi-finalists are eligible for one of 10 awards of \$100,000. According to Public Law 104-208, congressional mandate requires ACWA to identify and demonstrate not less than two alternative technologies to the baseline incineration process for the disposal of assembled chemical weapons. With the assistance of The Keystone Center, they convened the Dialogue—a group composed of citizens from nine stockpile communities; federal, state and tribal regulators; DOD staff; and representatives of national interest groups—to play an integral role in the development of the program. The *Innovations in American Government Program* identifies outstanding achievements in

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government problem-solving. The program, administered by Harvard University and sponsored by the Ford Foundation, strives to give exposure to public innovators so their methods can be shared with others.

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## **ABINGDON COMPANY RECEIVES CP2 AWARD**

Regarded in government contracting circles as the highest honor and recognition for contractor quality, the CP2 Award recognizes EAI Corporation of Abingdon for its excellent and consistent standards in quality performance. Highly selective and prestigious, the U.S. Army's Contractor Performance Certification Program was established to promote quality performance and foster high standards in government contracting. At a ceremony in May at the EAI's Abingdon headquarters, the corporation became the first Maryland service corporation to be inducted into the program and was presented with the CP2 Award by Major General John Doesburg, commanding general of the U.S. Army Soldier and Biological Chemical Command.

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## **NATICK SOLDIER CENTER INTERVIEWED BY NEW YORK TIMES MAGAZINE**

The Natick Soldier Center was interviewed by a reporter from the *New York Times* Magazine for the April issue. The topics discussed included the Humanitarian Daily Ration; Meal, Ready-to-Eat Improvement Program; Hooah Bar; Ergo Drink; Unitized Group Ration, and Shelf Stable Sandwiches. A limited number of samples were also provided for photo purposes and sampling. Also highlighted was the extensive leveraging achieved by the Combat Feeding Program and demonstrated success of the Integrated Product Team (NSC, DSCP, Industry, and academia) in optimizing cost, schedule, and performance.

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## **SECRETARIES' BREAKFAST**

SBCCOM's Federal Women's Program (FWP) sponsored a "Secretaries' Breakfast" on April 21<sup>st</sup> at the Colonel's Choice in Aberdeen. This has become an annual event, where a buffet breakfast is followed by a dynamic speaker. This year's speaker was Ms. Gail Howerton.

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## **BRING YOUR CHILD TO WORK**

The Army Materiel Systems Analysis Activity at Aberdeen Proving Ground held a "Bring Your Child to Work" Day in April. SBCCOM's Program Manager for NBC Defense Systems supported this program by sending SGT Michael Walker dressed in MOPP (Mission Oriented Protective Posture) and wearing the new Joint Service General Purpose Mask. Ms. Vicky Evering, the AMSAA point of contact, called to say that "our soldier" was the hit of the day!

SBCCOM's Federal Women's Program (FWP) sponsored a "Bring Your child to Work" Day" in June because the FWP sponsored the "Secretaries' Breakfast" during **Secretaries' Week**, which was the same week in April. Because SBCCOM's FEP at Edgewood is such a small group, it was not possible to plan both activities during the same week

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## EXECUTIVE SECRETARIAL TRAINEE PROGRAM

The SBCCOM Executive Secretarial Trainee Program which offers an opportunity for secretaries to gain experience at the Command level by serving on a 120-day promotion in the SBCCOM Command Group has been selected by HQDA to be briefed at the DA Forum at the Federally Employed Women's (FEW) Conference in Phoenix, AZ scheduled for 19-23 July. Additionally, the program was selected to be the Army representative "best program" at the DoD Forum at the conference. The program will be briefed by Ms. Suzanne Schultz who developed the program.

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## IMPLEMENTATION OF ARMY IDEAS FOR EXCELLENCE PROGRAM (AIEP) SUGGESTION

Mr. James Blackiston, Equipment Specialist for the Detection and Decontamination Core Team, received an AIEP award for the implementation of his recommendation on the installation of a turn-off valve when operating the siphon system as a means of water conservation. Rock Island has procured and assembled the components of the Modification Work Order (MWO) Kit. As a result, the conservation of water for drinking, as well as for decontamination purposes, is now in place.

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## OTHER PEOPLE IN THE NEWS

Dr. Harry Salem was interviewed on background for an **NBC Dateline** investigative story on the use of pepper spray (OC) in training and against civilians despite few scientific studies and lack of regulatory oversight on these products. Some law enforcement officers have reported permanent eye damage from OC training exercises. The interview was arranged and coordinated by James Allingham. Salem's 1994 overview of scientific literature on capsaicin, the lack of OC studies and the need for scientific studies on OC were discussed, as well as the related science. The interviewer expressed her appreciation for the discussion and indicated that it helped her better understand the science underlying her story.

Messrs. Marion Rashall and Rich McInnis (former SBCCOM employee) from the Monitors, Alarms and Detectors Team have been acknowledged by TACOM-ACALA for their outstanding support in the 1997-1998 **OSCR** program and are included in the "Who is Who in the Value Engineering" brochure. Mr. McInnis' saving of \$731,000 was achieved through an "Inspect and Repair as Necessary Program, which he initiated to repair the unserviceable M8A1 Chemical Agent Alarms, instead of overhauling them as was originally planned by Anniston Army Depot. Mr. Rashall's savings of \$1,777,000 was the result of testing he performed to extend the shelf life of M9 Chemical Agent Detection Paper from 3 to 6 years, thus avoiding the disposal of the on-hand M9 Paper assets and the subsequent purchase to fill the wholesale supply line.

Mr. Timothy Blades, Edgewood CB Center, was sighted for his outstanding *assistance to the United Nations Special Commission in Iraq*. Mr. Blades' expertise has been requested on numerous occasions and has greatly enhanced the technical capabilities of this multinational effort.

Dr. Dennis Reutter, Chief of the Edgewood Chemical and Biological Forensics Analytical Center, was recognized by the FBI for his outstanding support during the recent celebration of NATO's 50<sup>th</sup> anniversary.

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Dr. Reutter and his team supported the FBI's Hazardous Materials Response Unit during the event by deploying a fully equipped mobile laboratory containing a wide range of analytical instruments. The lab's presence assured the FBI that they would have 24 hour on-site capabilities for the analysis and identification of chemical and biological threat agents. SFC Paul Strang (SBCCOM's Technical Escort Unit) and his team were recognized for the operations support they provided to round out our technical capabilities. The FBI stated that immediate access to such an outstanding laboratory facility and professional staff of scientists and technicians was invaluable to their mission of helping to secure the safety of the NATO Anniversary participants.

Mr. Michael Ellzy was recognized by Raymond J. Fatz, Deputy Assistant Secretary of the Army (Environmental, Safety and Occupational Health) for his efforts in developing Land Disposal Restrictions for the safe management of chemical agents and associated wastes for the U.S. Army. Mr. Ellzy was a team member of the Land Disposal Restriction - Utah Group, which was formed to support the State of Utah in development standards for chemical agents and associated wastes.

As was announced in Issue 17 of the CB Quarterly, Dr. Tu-Chen Cheng and Mr. Raymond Lins were both Gold/silver Award Finalists in the **1999 Excellence in Federal Career Award** ceremony. We are proud to



*FEA Award Winners: (left to right) Patricia Reeves, Raymond Lins, Sabrina Edwards, Hilda Bartley, Roberta Walker, and Dr. Tu-Chen Cheng*

announce the Dr. Cheng was a Silver Award Winner in the Outstanding Professional (Technical, Scientific and Program Support) Category. Dr. Cheng's work has provided the US Army with an important foundation for the use of enzymatic decontamination technology in meeting operational and environmental goals in future years. Mr. Lins was also a Silver Award Winner in the Outstanding Para-Professional (Technical, Scientific and Program Support) Category. He has an outstanding record of achievement as a technician supporting our Chemical Evaluation Laboratory. He was successful in bringing in an appreciable amount of customer money to the Laboratory.

University of Maryland School of Medicine and has joined the Edgewood CB Center's Molecular Engineering Team. Ms. Coliano's thesis used the Cytosensor Microphysiometer to assess the effects of low level, multi-agent exposure on human cellular metabolism.

Ms. Tracy Coliano, a CREST student intern, successfully defended her Masters Thesis at the

Ms. Amendh Arasteh, a Masters degree student at the University of Maryland-Baltimore County, was selected as an AMC ACTEDS intern and joined the Edgewood CB Center's Molecular Engineering Team in May. Ms. Arasteh's areas of expertise are microbiology and biotechnology.

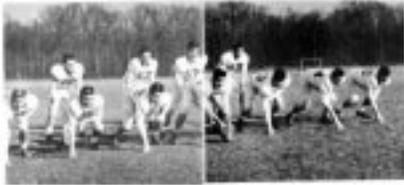
Ms. Suzanne Procell graduated from Towson University with a Bachelors degree in Chemistry.

Four Design Evaluation Laboratory personnel were recently recognized for their accomplishments by area colleges. Juan Cajigas received his MS degree in Environmental Engineering from the Johns Hopkins University. Suzanne Procell received her BS degree in Chemistry from Towson University. Marcia Johnson received her AS degree in Environmental Science and a certificate in Environmental Technology from Harford

Community College. Janice Hannigan received her certificate in Environmental Technology from Harford Community College.

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## BLAST FROM THE PAST



Messrs. John (Skip) Richardson and George H. Harmeyer graduated from Edgewood High School in 1961. Skip was the quarterback for the school's football team, and George was his center. Thirty-seven years after graduation, they met again for the first time at the **1999 Armor Conference** at Fort Knox, KY. Skip is a valued member of the XM50 Joint Service General Purpose Mask Integrated Product Team within the Office of Project Manager for NBC Defense Systems, and attended the Armor Conference to promote his product. George is now MG George H. Harmeyer, Commander of Fort Knox and the Armor Center and School, Fort Knox, KY, and was the host of the Armor Conference. They renewed old times during the Garden Party Event of the Armor Conference. MG Harmeyer was unable to attend any of his high school reunions due to oversea assignments, but the two took up right where they left off. It is not difficult to recognize Skip and MG Harmeyer in their original high school yearbook pictures and snapshot of the football team. Skip has been invited to attend MG Harmeyer's retirement this fall and assist in a re-make of "this is your life" for MG Harmeyer.





Edgewood Enterprise employees participate in many workshops, symposiums, and conferences; and many are recognized by outside organizations for their exemplary performance. It is our pleasure to share this information.

*In March:*

Mr. Randy Laye and Dr. Mohamed Mughal attended **Chem-Bio 99**, "The Keys To Crisis Response and Support," sponsored by the Jane's Information Group in Newport Beach, CA. A booth depicting the goals, objectives, and accomplishments of BW and CW IRP programs were among those on display at the conference. The display booth generated much interest and discussion with conference attendees and resulted in many new contacts with personnel from local, state, and federal government.

Dr. George Famini presented two papers at the national **American Chemical Society Meeting** in Anaheim, CA. Both papers dealt with the use of computational chemistry to understand linear free energy relationships. These presentations are the continuation of work began approximately 9 years ago in attempting to correlate empirical physical properties with computed descriptors.

In addition to the presentations, Dr. Famini also chaired the executive committee meeting of the Division of Computers in Chemistry and attended (by invitation) an ad hoc advisory meeting of the U.S. delegation for the upcoming **International Union of Pure and Applied Chemistry**, in preparation for the August Congress in Berlin.

SBCCOM hosted a meeting of the Multi-Agency Task Force on Nunn-Lugar-Domenici Exercises at Aberdeen Proving Ground, MD. The meeting was attended by representatives from Federal Emergency Management Agency, Federal Bureau of Investigation/National Defense Preparedness Office, Department of Health and Human Services/Office of Emergency Preparedness, Environmental Protection Agency, Department of Military Support, Office of Assistant Secretary of Defense/Reserve Affairs, Department of Energy, Oak Ridge National Laboratory, Battelle, Research Planning Inc, and Booz Allen & Hamilton. Agenda topics included reviews of the CW and BW Improved Response Programs, the 1999 Federal State Local Exercise, the BW Tri-City Program, and initiatives to fill gaps on building protection, building decontamination, BW response decision tree, BW subway surveillance, emergency response software, standardized nomenclature and casualty projection methods.

A Domestic Preparedness booth was manned at the **annual Fire Fighter Instructor's Conference** in Indianapolis. Approximately 400 attendees visited our booth each day. Most of the questions centered around when their cities would receive the training. In addition, the following questions were asked: (1) How could they get the training materials if they didn't live in a city which was targeted for training? (2) Is there any follow-on training? (3) How do they apply for the Department of Justice grant? (4) How do we contact the cities selected for Domestic Preparedness training and how is the point of contact selected? Many visitors of the booth were representatives of previously trained cities. Several volunteer fire departments also visited the booth. Total attendance at the conference was estimated at 20K. There were 657 display booths at the conference. The visitors that visited our booth all had positive comments regarding our booth's appearance, their past Domestic Preparedness training, or

they genuinely seemed excited about getting future training.

The Domestic Preparedness Team had an exhibit at the **1999 National Defense Industrial Association Conference on TechTrends 2000**. The conference attracted congressional interest from Pennsylvania, Delaware, and New Jersey along with much local equipment vendors and researchers. Senator Arlen Specter's Office staff, NBC Defense representative from the Embassy of France, and Defense News reporter were among the visitors to the conference who were interested in Domestic Preparedness.

*In April:*

Mr. David Caretti, Edgewood CB Center, presented a scientific paper at the **American Industrial Hygiene Association Conference and Exposition**. In addition, he attended technical sessions addressing issues related to the field of respirator protection.

SBCCOM's **Industrial Base Planning Office** hosted a meeting for the **North Atlantic Technology Industrial Base (NATIBO) Committee**. NATIBO is a United States and Canadian committee that is interested in initiating a study of chemical and biological detection systems. During the meeting, it was decided to establish a Working Group to include members from SBCCOM's Contamination Avoidance programs and the Industrial Base Planning Office to work with NATIBO.

The Domestic Preparedness Office presented a briefing on the Biological Warfare Response Template to the **Chemical and Biological Warfare Proliferation Course** organized by SAIC. The students seemed to understand the concepts presented, but some were surprised that we approached BW response as a medical emergency rather than a HAZMAT incident - there is a real need for education and changing mind-sets in the BW area.

Dr. Peter Emanuel presented a poster, entitled "Producing Antibody Reagents by Phage Display,"

at the **DARPA BW Conference** in Sante Fe. Co-authors were Jessica Dang, Sarah Cork, David H. Lesh, Dennis Lukens, Ray Yin, and James J. Valdes. This poster covered the ongoing R&D efforts in Recombinant Antibody Production.

*In May:*

The Edgewood CB Center, Natick Soldier Center, and the Integrated Materiel Management Center at Rock Island participated in the **FEMA Conference** in Gatlinburg, TN. The theme of the conference was *Moving Preparedness, Mitigation, and Response Into the Next Millennium*.

The Center for Army Analysis (CAA) invited Dr. Mohamed Mughal to participate in their **Biological Terrorism Response Initiative Issues (BioTRI) Workshop**, held at Fort Belvoir, Virginia. The workshop, sponsored by the Consequence Management Program Integration Office (CoMPIO) within the Director of Military Support (DOMS), had the following objectives: define requirements for medical response to a domestic BW terrorist event; assess current DOD medical capabilities to support civilian domestic authorities; identify potential shortfalls in these capabilities; and provide alternative courses of action to remedy shortfalls. Products of the BW IRP were used and applied during the workshop. The initial morning session included a full briefing on the BW IRP process, results and conclusions. The follow-on working group sessions included analyses and applications of the BW IRP's BW response template. The Bio-TRI workshop scenario casualty spreadsheets were direct products of the 1998 BW IRP workshop scenarios. The CAA plans to apply the results of the BioTRI workshop in a future Political-Military Game.

The Office of the PM NBC Defense, PM Smoke/Obscurants, and the Armored Systems Modernization Team exhibited with

the Natick Soldier Center at the **Armor Conference** at Fort Knox, KY.

*In June:*

The Office of the Product Manager for Smoke/Obscurants and the Edgewood CB Center exhibited with the Natick Soldier Center at the **Infantry Conference** at Fort Benning, GA.

The Harford County **Environmental Managers Information Exchange (EMIX)** met. The topic was Worker’s Compensation. Proposed future topics include “Maryland Environmental Legislative Update” in September, “Hazardous Material Incident Preparedness & Response” in December, and “Meeting the Terrorism Threat” in March. The EMIX is a nonprofit self-sustaining association comprised of environmental and safety professionals from Harford County businesses and

government agencies who meet to learn and share information in an unofficial, cooperative atmosphere.

**Upcoming Symposium**

SBCCOM will participate in the **International Soldier Systems Conference and Natick APBI**, in Orlando, FL, in September. An exhibit will be developed showcasing our expertise in the areas recognized in the conference and subjects presented during the APBI.

We anticipate a joint exhibit with Natick at the **Technology 2009** in Miami Beach, FL, in November.



<i>Upcoming Conferences</i>		
<i>Date and Place</i>	<i>Title</i>	<i>POC</i>
<i>7-9 September 1999 Orlando, FL</i>	<i>International Soldier Systems Conference 99 and Soldier Systems APBI</i>	<i>At Edgewood Ms. Brenda Eckstein (410) 436-2879 email: bceckste@apgea.army.mil</i>
<i>11-13 October 1999 Washington, DC</i>	<i>AUSA</i>	<i>Ms. Brenda Eckstein (410) 436-2879 email: bceckste@apgea.army.mil</i>
<i>1-3 November 1999 Miami Beach, FL</i>	<i>Technology 2009</i>	<i>Mr. Roy Albert (410) 436-4438 email: rcalbert@apgea.army.mil</i>





## Books, Journals, and Magazine Articles

“Analysis of Chemical Weapons Decontamination Waste from Old Ton Containers from Johnston Atoll Using Multiple Analytical Methods,” W.R. Creasy, et al; H.D. Durst, *Environmental Science and Technology*, *American Chemical Society*.

“Modeling the Effects of Respirator Mask Design on Wearer Performance: Phase I Concept/Initial Development,” D.M. Caretti, *Crew System Ergonomics Information Analysis Center Program Office*.

“Hazards of Chemical Weapons Release During War,” S.A. Reutter, *National Institute of Environmental Health Sciences*.

“Human Computer,” R.W. Hutchinson, *American Scientist*.

“Surface Fields and the T-Matrix,” by D.J. Hale, *J. Optical Society of America*, B.E.A. Saleh, Editor.

“Influence of Saline Media on the Fluorescence Emission of Bacillus Spores,” K.H. Fung and G.O. Rubel, *Applied Optics*.

“Isotropic Scattering by Penetrable Cylinders,” D.J. Hale, *J. Optical Society of America*; B.E.A. Saleh, Editor.

“Thermal Luminescence Sensor for Ground Path Contamination Detection,” A.H. Carrieri and I.F. Barditch (ECBC), D.J. Owens, E.S. Roese, P.I. Lim, and M.V. Talbard (Quetron Systems, Inc.), *Applied Optics*.



## TECHNICAL REPORTS

*Published technical reports, when available, should be requested from the Administrator, Defense Technical Information Center, ATTN: DTIC-FDRB, 8725 John J. Kingman Road, Ste 0944, FT Belvoir, VA 22060-6218.*

<i>Report No.</i>	<i>Title</i>	<i>Author(s)</i>
ECBC-CR-004	Measurements of the Ultraviolet Fluorescence Cross Sections and Spectra of Bacillus anthracis Simulants, May 1999, UNCLASSIFIED - public release.	J.R. Stephens
ECBC-CR-005	Hardware, Software, and Operational Procedures for an Extractive FT-IR Air Monitoring System, April 1999, UNCLASSIFIED - public release.	C.C. Chaffin T.L. Marshall
ECBC-CR-006	Brief Introduction to MIDAC Autoquant Version 3.0 April 1999, UNCLASSIFIED - public release.	T.L. Marshall C.C. Chaffin
ECBC-CR-009	Unified Method for Predicting the Stability of Liquid-Filled Projectiles, Version 1.0, June 1999, UNCLASSIFIED - limited.	D.J. Johnson R. Li M.C. Miller
ECBC-SP-001	Proceedings of the Joint Services Workshop on Biological Mass Spectrometry, January 1999, UNCLASSIFIED - public release.	S.R. Long T. Krishnamurthy A.P. Snyder D.J. Weber
ECBC-SP-003	Summary Report of the 1997 Joint Services Workshop on Optical Methods of Biodeflection, June 1999, UNCLASSIFIED - limited.	B.V. Bronk M.E. Milham S.D. Christesen S.W. Gotoff
ECBC-SP-055	Chemical Defense Equipment Process Action Team, Final Report, December 1998, UNCLASSIFIED - limited.	E.R. Valdes P. Emanuel T. Kocher
ECBC-TR-010	Quantitative Analysis of Residual VX in Caustic Neutralization Solutions by Solid Phase Extraction and GC/MSD: Analysis of Hydrolysate as Unseparated Phases, April 1999, UNCLASSIFIED - public release.	K.M. Morrissey T.R. Connell J.R. Stuff H.D. Durst R.J. O'Connor
ECBC-TR-013	Domestic Preparedness Program: Test for Mustard (HD) Liquid Challenge of Hoses for Self-Contained Breathing Apparatus (SCBA), March 1999, UNCLASSIFIED - public release.	P.V. Sneeringer L.E. Campbell

ECBC-TR-018	Characterization of the Integrated Virus Detection System (IVDS) Using MS-2 Bacteriophage, May 1999, UNCLASSIFIED - public release.	C.H. Wick D.M. Anderson P.E. McCubbin
ECBC-TR-021	Effects of Detergents, Foams, and Quaternary Ammonium and Phosphonium Compounds on the HD Dechlorination Rate, March 1999, UNCLASSIFIED - public release.	S.P. Harvey
ECBC-TR-022	Catalytic Dechlorination of HD with a Quaternary Ammonium Phase-Transfer Catalyst, March 1999, UNCLASSIFIED - unlimited.	S.P. Harvey
ECBC-TR-025	Domestic Preparedness Program: Liquid Sulfur Mustard and Sarin Challenge/Vapor Penetration Swatch Testing of Kappler CPF3 Coverall, Model 3T436, April 1999, UNCLASSIFIED - public release.	R.S. Lindsay T.L. Longworth M.A. Johnson
ECBC-TR-026	Domestic Preparedness Program: Liquid Sulfur Mustard and Sarin Challenge/Vapor Penetration Swatch Testing of Blue Max Hazmat Splash Clothing, Model B, April 1999, UNCLASSIFIED - public release.	R.S. Lindsay J.M. Baranoski J.B. Hannigan
ECBC-TR-027	Quantitative Comparison of Active and Passive FT-IR Measurements, June 1999, UNCLASSIFIED - limited.	C.T. Chaffin T.L. Marshall R.J. Combs
ECBC-TR-030	Man in Simulant Testing (MIST) of Domestic Preparedness Suits: Kappler Model 42483, Responder CSM Level A Suit, May 1999, UNCLASSIFIED - public release.	V.J. Arca
ECBC-TR-033	Testing of Commercially Available Detectors Against Chemical Warfare Agents: Summary Report, May 1999, UNCLASSIFIED - public release.	T.L. Longworth K.Y. Ong J.C. Cajigas J.L. Barnhouse S.A. Procell
ECBC-TR-034	Experiments in Sheltering in Place: How Filtering Affects Protection Against Sarin and Mustard Vapor, June 1999, UNCLASSIFIED - public release.	W.K. Blewett V.J. Arca
ECBC-TR-039	Man in Simulant Testing of the Improved Toxicological Agent Protective (ITAP) Suit, June 1999, UNCLASSIFIED - limited.	B.A. Cannon V.J. Arca W.P. Ahearn L.F. Saubier

ECBC-TR-456	Pulsed Light Device (PLD) for Deactivation of Biological Aerosols, December 1998, UNCLASSIFIED - limited.	C.H. Wick M.D. Dunkel R. Crumley J. Dunn K.Rie
ECBC- TR-531	Concept Studies for Pressure Swing Adsorption Air Drying, December 1998, UNCLASSIFIED - limited.	J.J. Mahle L.C. Buettner
ECBC-TR-548	Sulfur Chemiluminescence Detection Compared to Sulfur Flame Photometric Detection, December 1998, UNCLASSIFIED - public release.	M.W. Ellzy L.G. Janes
ECBC-TR-550	Reactions of GD and VX With Ozone, December 1998, UNCLASSIFIED - public release.	P.E. Bartram V.D. Henderson J.W. Hovanec M.D. Brickhouse G.W. Wagner T.R. Connell W.R. Creasy K.M. Morrissey J.R. Stuff B.R. Williams
ECBC-TR-554	Oral LD50 Super Critical Water Oxidation (SCWO) Post Evaporator Distillate In Rats, December 1998, UNCLASSIFIED - public release.	J.H. Manthei R.E. Way B.I. Gaviola



The Headquarters of the U.S. Army Soldier and Biological Chemical Command is located at the Edgewood Area of Aberdeen Proving Ground, Maryland.



Within the SBCCOM RDA Enterprise is the Research, Development and Engineering (RDEC). The RDEC consists of the Natick Soldier Center and the Edgewood CB Center. This publication is prepared at the Edgewood CB Center, incorporating CB-related information from the entire RDE Center.



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