SBCCOM
(Edgewood-Natick)
RDA Enterprise

CB QUARTERLY

Issue No. 21 March 2000

BIOLOGICAL DEFENSE RESEARCH PROGRAM ENHANCEMENTS AT THE EDGEWOOD CB CENTER

The threat of biological warfare agent use in military operations, as well as domestic attacks by terrorists, requires the development of technologies capable of rapidly detecting and identifying hazardous microorganisms and agents of biological origin. Development of such technologies requires well-designed facilities able to safety store, handle, and dispose of a wide variety of microorganisms and biological toxins.

The Edgewood Chemical Biological Center (ECBC) has a long and very successful history of research and development efforts involving military unique chemicals and toxins. More recently, emerging biotechnology and complex military/civilian defense mission requirements make it necessary for ECBC to enhance it's on-site biological defense research and development capabilities. This new venture, known as the "ECBC BioEnhancement," is spearheaded by a team of senior managers, researchers, and risk management personnel. The BioEnhancement project includes planning to augment the ECBC staff with scientists specializing in bacteriology, virology, molecular biology, and molecular toxicology. The BioEnhancement Team, led by Dr. James J. Valdes, has carefully crafted a four-fold plan to build ECBC's biodefense structure.

The Edgewood CB Center BioEnhancement will include the following four elements:

◆ Research laboratory space in our McNamara Building capable of operating at Biosafety Level 3 (BSL-3). The mission of ECBC's BSL-3 laboratory will be to provide an analytical capability for biological agents in support of the biological defense community. The BSL-3 bio-analytical laboratory will have the capability for the isolation, identification, and characterization of human pathogens and biological toxins, which may be used against U.S. Forces in a theater of operations or against civilian populations in a terrorist scenario. The BSL-3 laboratory will be a modification of an existing chemical surety laboratory with anticipated completion of early FY2001.

◆ A facility for the handling of samples containing biological contaminants collected from military missions, law enforcement sources, and installation restoration operations. This site, located in the Chemical Transfer Facility will include a custom designed biosafety cabinet that will be used for pre-screening of samples suspected of containing chemical, biological, or radiological contaminants. An additional feature is the recent procurement of a 26,000 Curie gamma irradiator that will be used in the Chemical Transfer Facility to sterilize samples that are potentially contaminated with pathogenic organisms.

◆ A facility to maintain a cryogenic repository for antibodies, antigens, and DNA from biological threat agents. This facility, as part of the Critical Reagent Program, uses state-of-the-art cryogenic (liquid nitrogen) technology to ensure secure long-term storage of antibodies and other cellular products. An added feature is a digital logging system, which uses a bar coded labeling system and interactive database.

Critical Reagent Repository

◆ A facility for the development and support of several "Fly-Away" mobile laboratories that will provide the capability for field sampling and analysis of chemical and biological materials. This site, as part of the Chemical Biological Forensics Analytical Laboratory, will design/assemble mobile laboratories, calibrate analytical equipment, and maintain the "Fly Away" labs in a state of constant readiness.

Modular "Fly Away" Laboratory

To date the Edgewood CB Center BioEnhancement has been briefed to local civic leaders, local mayors, and other Maryland political leaders. In addition, the BioEnhancement has been approved by Department of Army (DA) and the Centers for Disease Control and Prevention (CDC). An environmental assessment (EA) evaluating the potential environmental effects of this program was submitted to the Maryland Department of Environment and other State agencies for review and comment. The EA concluded with a "Finding of No Significant Impact," which was recently published in local newspapers. Subject matter experts from DA and CDC will attend a pre-operational survey of the BSL-3 laboratory once lab modifications are complete.

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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 Communications Team at 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 Communications Team:

Team Leader: Brenda C. Eckstein
Editor: Joanne N. Coale
Information Specialist: Joann J. Brucksch
Information Specialist: Regina F. Ryan

WARFIGHTER 2025

by Jane Benson

While many people may have been busy preparing for the year 2000, scientists at the U.S. Army Soldier and Biological Chemical Command at Natick have been busy envisioning and inventing technologies that will better protect the warfighter of the year 2025.

Led by Bob O'Brien, a team of Natick scientists and engineers has come together to brainstorm future warfighter systems. The team anticipates that the soldier of the future will don a multifunctional uniform constructed from smart, interactive textiles and other materials.

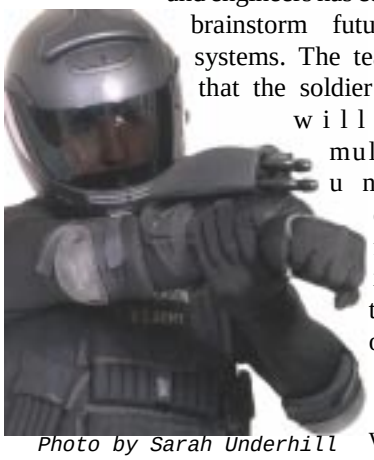


Photo by Sarah Underhill

Such materials will be able to sense and react. For example, the warfighter of 2025's uniform will be able to sense the warrior's surroundings and change color to blend in with the environment, or detect and repel chemical agents. The uniform will also act as a "data bus," passing data and information from, for example, a wrist-mounted weapon to the helmet-mounted display.

"Soldier 2025 takes technologies that we're working on today one step further," said team member Robin St. Pere.

Advances in nanotechnology will also benefit the soldier of 2025. Nanotechnology is the ability to manipulate materials on an atomic or molecular scale. This technology will improve the strength and durability of textile fibers, which will lead to vast improvements in ballistic protection for the soldier.

As a result of material advances, the soldier of 2025 will wear a helmet that is 40-60 percent lighter for protection against fragmentation threats. In addition to providing protection against shrapnel, it is anticipated that new materials will permit a bulletproof helmet to be developed that is somewhat heavier.

The helmet is expected to protect the soldier's face and eyes from all threats, including environmental, energy, chemical, biological, and ballistic. Nanotechnology is also expected to permit sophisticated capabilities to be included in the headgear subsystem. The subsystem will include a high-resolution display giving warfighters the ability to view tactical/situational data, maps, and areas of chemical/biological concentrations.

The headgear's integral communication system will make it possible for a warfighter to transmit and receive information from his squad, other squads, his command group, remote sensors, or even unmanned aerial vehicles performing reconnaissance.

Soldier 2025 will possess a microclimate conditioning subsystem incorporated into his belt. The mechanism will warm the soldier in cold weather and cool him in warm weather.

The future warfighter will benefit from a physiological status monitoring system, which will keep track of information such as whether the soldier is dehydrated or sleep-deprived. The data would then possibly be transmitted to a medic, unit commander, or both.

These are just a few of the ideas proposed at Natick. Some of these concepts may come to fruition as originally envisioned. However, inventing is, and always has been, a process of trial and error; and some products mentioned here may be altered and reconfigured along the way to best serve the soldier of the future.

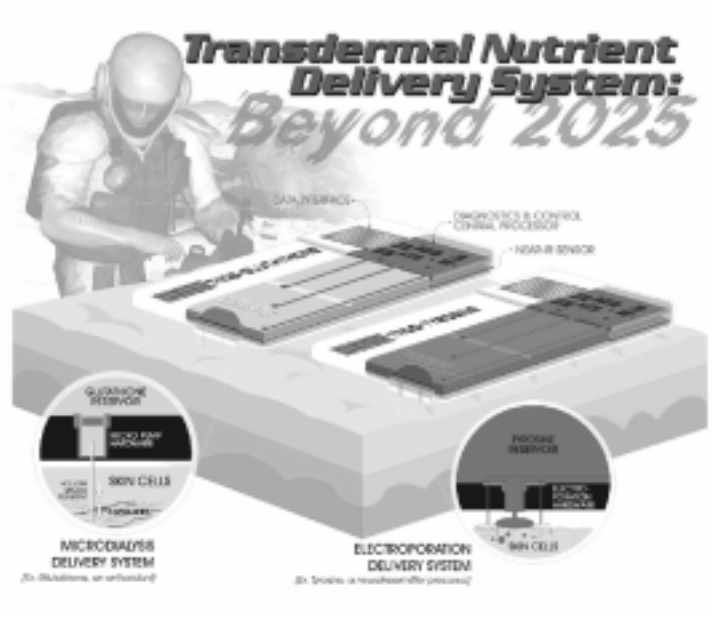
POC: Public Affairs Office at Natick, U.S. Army Soldier and Biological Chemical Command, Commercial (508) 233-4300 or DSN 256-4300

NATICK SCIENTISTS ARM SOLDIERS WITH NUTRITION

by Jane Benson

Scientists in the Department of Defense (DoD) Combat Feeding Program are working to ensure that the soldier of the future has plenty of nourishment within arm's length.

Although the product is still planted in the conceptual phase, scientists are working on a nutrition patch called the Transdermal Nutrient Delivery System (TDNDS) that would be used by warfighters under extreme circumstances.



The system would conceivably expand on the osmotic technology of the nicotine patch that is worn on the arm. However, instead of transmitting nicotine, this patch will transmit vitamins and nutrients needed by the human body. The patch would be used to keep the warfighter at optimum performance for a day or two, until he or she has access to a real meal and the time to eat it.

Gerald Darsch is the joint project director for the DoD Combat Feeding Program, which is part of the Natick Soldier Systems Center. "TDNDS would be used during periods of high-intensity conflict," Darsch said. "It is not intended to ever replace a turkey dinner with all the fixings."

Darsch explained that the patch's ingredients could also include nutraceuticals. These chemicals could tell a hungry soldier's brain that his stomach is full or reduce combat-related stress, such as muscle fatigue and physical problems associated with prolonged cold weather exposure and high altitude.

In the future, the patch could possibly transmit nutrients in one of several ways. According to Darsch, a microchip processor would interact with sensors to determine a warfighter's metabolic requirements. The microchip processor would then activate a microelectrical mechanical system to transmit the micronutrients. Nutrients would be transported via skin pores that have been opened by electrical impulses, or through microdialysis, which would pump nutrients directly into blood capillaries. Another potential vehicle for transport could involve controlled release of encapsulated nutrients through the skin.

Dr. C. Patrick Dunne of the DoD Combat Feeding Program, said that the patch has civilian, as well as military, applications. In the future, the patch could be used by workers in a variety of stressful, hazardous work environments. For example, the patch could potentially be used by miners, oil rig workers, firefighters, chemical production or cleanup workers, as well as by astronauts involved in space walks or space station repair. However, Darsch pointed out that TDNDS is still an early concept.

"Will the TDNDS be achievable as we envision it today? Maybe not. Are we investing heavily in it today? Absolutely not," he said. "Nevertheless, it has been said the best way to predict the future is to invent it. Natick has already received calls from several world-class companies to begin to explore a partnership to determine the feasibility of this concept."

Pending significant technological breakthroughs, Darsch estimates that the system could be available to military personnel around the year 2025.

POC: Public Affairs Office at Natick, U.S. Army Soldier and Biological Chemical Command, Commercial (508) 233-4300 or DSN 256-4300

HELP LINES/TOLL-FREE NUMBERS

	Telephone No.	*fax no.*
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	

CHAPEL BLESSES BASE CAMPS

By Curt Biberdorf

They have been held in the dining facility, in a vacant tent, or even outdoors under a tree. Worship services at an Army base camp have sometimes been a take-what-space-you-can-get event until the introduction of the Containerized Chapel.

"Until now, all you had was a chaplain with a chaplain's kit on his or her belt. Then that chaplain would have to find a place to conduct worship," said Chap. (Maj.) Ben Richardson, U.S. Army Soldier Systems Center (Natick) chaplain. "They had to conduct worship wherever space was available."

The Containerized Chapel, developed by Natick's Product Manager-Soldier Support, is a package of equipment that provides a multi-functional chapel for a 550-person base camp. The concept grew out of the needs identified in the past several years for long-term stability and support operations in Haiti, Somalia, Bosnia, Albania, and Macedonia.

The Containerized Chapel is similar to the chapel found at Force Provider – the Army's containerized, highly deployable "city" – "but there was no way of taking out one component and using it now for troops deployed in Europe," he said.

Following a request from units serving in Kosovo in support of Task Force Hawk, two prototypes were ordered. Product Manager-Soldier Support staff assembled them, and they were shipped to Camp Bondsteel and Camp Monteith. By September, the chapels were operational, the entire process taking two months.

In addition to having no place to call a worship home, chaplains didn't have a complete set of equipment to meet the needs of various faiths until now.

Each Containerized Chapel is transported in a steel container deployable by air, sea, or land. Inside is a tent with complete power generation, lighting, electrical distribution, climate control, and seating for 100 people. Equipment such as lecterns, altars, linens, candles, a cross, a crucifix, offering plates, communion sets, and several versions of the Bible are included to support Protestant and Catholic faiths. Jewish and Islamic supplies include chaplain kits, yarmulkes, kufis, kimaras, prayer mats, Torahs, and Korans.

The Army supports the free exercise of religion for everyone, and the Containerized Chapel elevates religious support to a new level.

"We've always had items to accommodate the Jewish faith. Now the Muslims are really tickled because of the items to support them," Richardson said.

Other items included are a portable PA system, an electronic keyboard, a digital hymnal capable of playing up to 5500 worship songs, 180 days of consumable supplies (such as communion wafers and juice), TV/VCR, microwave oven, coffee pot, and folding tables.

It's so complete, all that's missing are the chaplains and chaplain assistants.

"The Containerized Chapel is light-years better than a GP medium (tent)," said Chap. (Maj.) Allen Kovach, a Task Force Falcon chaplain. "Having such a chapel somehow brings more people into worship."

Increased attendance has meant a surge of new events and services, including crisis counseling debriefing sessions, added Richardson.

Richardson said he was mystified by not only how quickly the chapel was fielded but also by how he hasn't heard one comment about missing items. "PM-Soldier Support was very meticulous to ensure that every item requested or required was included," he said.

Moreover, research and development wasn't scheduled until fiscal year 2001. The Containerized Chapel team is composed of Richardson, Dave Carney, Scott Mannka, Robert Graney, and Sgt. Michael Stephenson.

"This team broke all records to design and produce a quality item in record time," Richardson said. Beyond the two prototype chapels already in service in Kosovo, the plan is to procure and store 40 Containerized Chapels in Operational Project Stock.

Operational Project Stock is a system of prepositioning Army equipment for rapid deployment with a minimum logistics burden. Deploying units would be able to borrow the Containerized Chapel from the inventory instead of possessing their own, according to Maj. Andy Ramsey, assistant product manager for field services, Product Manager-Soldier Support.

One chapel would be stationed at the U.S. Army Chaplain Center and School in Fort Jackson, SC; the Joint Readiness Training Center, Fort Polk, LA.; the National Training Center, Fort Irwin, CA; and the Combat Maneuver Training Center, Hohenfels, Germany, for unit ministry teams to learn, operate, and maintain them.

"As an Army, we generally don't send troops somewhere for a week or two. We send them for several months at a time," said Richardson. "It's possible to scrounge for worship space for a week or two but not for months. The Containerized Chapel fits into the Army's new operational tempo."

"Many times exercises held at training centers don't have high attendance because they can't adequately simulate the fear factor," said Richardson. When troops deploy to a remote overseas location wearing their flak vests, carrying loaded weapons, and feeling fear, the attitude changes. Chapel becomes a source of reassurance in stressful times.

"To me, those are the things where you can't quantify the value," said Richardson. "If it helps settle the soldier's mind and helps him to do his job, how do you put a value on that?"

POC: Public Affairs Office at Natick, U.S. Army Soldier and Biological Chemical Command, Commercial (508) 233-4300 or DSN 256-4300

MARINE CORPS CELL FORMING AT EDGEWOOD CB CENTER

At the Edgewood CB Center, we are forming a new team to support the Program Manager, Marine/NBC Combat Support and Logistics Equipment. This PM has responsibility for USMC chemical biological programs and is looking for on-site support here at Edgewood, particularly on joint service programs.

The team will include a Team Leader, four engineers, and an individual with an ILS specialty (who will be less than full time). A similar team has already been formed and is in operation at the Natick Soldier Center. The team here will be modeled after the Natick success.

Each of the four full-time team members will be aligned with the four teams at Marine Corps Systems Command. The Marine teams being supported are: Marine (primarily individual equipment); Contamination Avoidance (primarily detection); Decon/Shelters, Collective Protection; and Consequence management (support to special forces and "Homeland Defense").

The team members at Edgewood will represent the Marine Corps' teams' programs and operationally become members of the Marine Corps' PM. Program direction for the team will come from the PM-Marine/NBC Support and Logistics Equipment.

POC: Mr. Howard M. Smalley, Commercial (410) 436-4933, DSN 584-4933, or email hasmalle@sbccom.apgea.army.mil

SBCCOM SUPPORT TO DEPARTMENT OF JUSTICE

Dr. James Savage and Ms. Mary Soubie participated in a farewell visit from the Honorable Laurie Robinson to the Center for Domestic Preparedness in Anniston, AL. Ms. Robinson is the Assistant Attorney General for the Office of Justice Programs at the Department of Justice. It was exactly one year ago that our Interagency Agreement was signed by Ms. Robinson and Mr. Zarzycki, Edgewood CB Center Technical Director, to assure SBCCOM technical support. Ms. Robinson was highly complimentary of our continued support and she looks forward to a long partnership.

FBI MEMORANDUM OF AGREEMENT

A Memorandum of Agreement (MOA) between the FBI and SBCCOM was approved in March. The MOA establishes the process that SBCCOM and FBI Hazardous Materials Response Unit (HMRU) have mutually agreed to use in support of tactical response and deployment of an analytical capability for the identification of unknown samples. The Edgewood CB Center will provide scientific advice on how to assess, package, retrieve, receive, and sample; provide sample management; and analyze samples within areas of expertise. We will also develop, manage, and operate specialized equipment to include sample kits, deployable laboratories, and sample transportable transportation equipment.

Fieldings

 *M56 Smoke Generator*	318th Cml Co., Ft. McClellan, AL POC: Randal H. Loiland AMSSB-PM-RSM-M, DSN 584-2806	Jul 00
 *M157A2 Motorized Maintenance Work Order (MWO) Retrofit Kit*	395th Bde, Arkansas Army National Guard POC: Janice A. Nordin AMSSB-PM-RSM-V, DSN 584-2838	Apr 00
 *M157A2 Mechanized Maintenance Work Order (MWO) Retrofit Kit*	218th Inf., South Carolina Army National Guard 434th Minnesota Army National Guard 272nd Massachusetts Army National Guard POC: Janice A. Nordin AMSSB-PM-RSM-V, DSN 584-2838	Mar 00 May 00 Jun 00
 *Light Vehicle Obscuration Smoke System (LVOSS)*	Various Inf/MP Cos., Ft. Bragg, NC Various MP Cos., Ft. Hood, TX POC: Henry St.Pierre AMSSB-PM-RSM-R, DSN 584-5527	May 00 Jun 00
 *M93A1 FOX/MICAD*	National Training Center, Ft. Irwin, CA MWB, Ft. Lewis, WA 3rd ACR, Ft. Carson, CO POC: CPT Scott Morris AMSSB-PM-RNN-T, DSN 584-6551	Mar 00 Jun 00 Jun 00

 *M40A1/M42A2 Mask*	Kansas National Guard Pennsylvania National Guard POC:CPT Scott Morris AMSSB-PM-RNN-M, DSN 584-6551	Apr 00 Jun 00
 *M45 Aircrew CB Protective Mask*	XVIII Abn Corps, Ft. Bragg, NC 3rd ID, Ft. Stewart/HAAF, GA 1st ID, Ft. Riley, KS I Corps, Ft. Lewis, WA 25th ID, Ft. Shafter, HI Ft. Wainwright, AK POC: CPT Scott Morris AMSSB-PM-RNN-M, DSN 584-6551	Mar 00 Apr 00 May 00 May 00 Jun 00 Jun 00
 *M48 CB Apache Aviator Mask*	Fieldings delayed until further notice POC: CPT Scott Morris AMSSB-PM-RNN-M, DSN 584-6551	
 *M22 Automatic Chemical Agent Alarm*	XVIII Abn Corps, Ft. Bragg, NC POC: CPT Scott Morris AMSSB-PM-RNN-A, DSN 584-6551	Mar 00

END ITEM UPDATES:

NBC DEFENSE EQUIPMENT

Reconnaissance, Detection, and Identification –

Battery Box, XM27 – The Safety Assessment Report (SAR) for the XM27 was completed and signed by the Detection Core Team. The XM27 battery box is intended to supplement the current M43A1 battery, the BA-3517/U as the primary M43A1 power source in the field. The XM27 will provide the user with the capability to power the M43A1 with replaceable standard D-cell batteries, or military LiSO2 batteries in the field. Hazards mitigated in the design include sharp edges, the potential for shock hazard, and battery venting. Based upon the SAR, and provided appropriate warnings are placed in user manuals, the XM27 is considered safe for use by Army personnel.

Sample Kit, Air: Chemical Agent Alarm, XM279 – A SAR was signed by the ACADA team for the XM279 Surface Sampler Probe. The XM279 is used to vaporize liquids found on surfaces and terrain that could be Chemical Warfare Agent (CWA). The Operator touches the tip of the probe into the suspect liquid CWA, then places the XM279 tip, with the suspect CWA, over the M88 Chemical Agent Alarm and the heater in the tip vaporizes the liquid sample for analysis by the M88. Hazards mentioned in the SAR focused on the heating element in the tip, which aside from presenting a hazard in itself, could present a source of ignition. Provided warnings and recommendation as given in the SAR are followed, the unit is considered safe for testing.

Automatic Chemical Agent Alarm (ACADA), M22 – BG Mangual signed delegation authority to the Navy for the Ship ACADA.

M8A1 Automatic Chemical Agent Alarms – Recently members of the Detection/Decontamination Team met with the Monitors, Alarms, and Detectors Integrated Product Team at Rock Island. As ACADAs are fielded, the M8A1 assets will be cascaded to reserve units. A Memorandum of Agreement has been written, and plans are being made to be present at ACADA fieldings to assist with the turnover of M8A1 assets.

Chemical Agent Monitor –

• Diagnostic Test Set. Two Special Packaging Instructions for Diagnostic Test Set spares were revised to incorporate CIDs and ASTMs in place of military specifications previously called out.

• Conversion of CAM to ICAM. We received 435 ICAM modification kits and 403 were used to convert CAMs to ICAMs. The remaining 32 kits were returned to the contractor for repair. All of the converted ICAMs were originally Condition Code “F” CAMs from the Army, Air Force, and Navy that have been re-worked by our Monitors, Alarms and Detectors Team. Except for cosmetic appearance, these modified units will perform like a new production unit

Joint Services Lightweight Standoff Chemical Agent Detector – In December, Intellitec conducted a successful critical design review; and all services approved proceeding into the Engineering Design Test Phase.

Biological Integrated Detection System (BIDS) – In November 1999, CECOM personnel visited Ft. Leonard Wood, MO, to train direct support personnel in the maintenance of the 18 KBTU ECU used on the BIDS.

Mr. Bill Williams, Electronics Engineer, in ECBC's Engineering Directorate, attended the training to enhance his knowledge regarding the repair of the ECU and its motor controller. While there, Mr. Williams accomplished the repair of six defective motor controllers, saving an estimated $24,000.

Joint Biological Remote Early Warning Systems (JBREWS) – In January, a Developmental Field Trial (DFT) for the JBREWS was conducted at Edgewood. Over 55 participants, from 11 Defense agencies, two Department of Energy National Labs, and seven civilian agencies and contractors, conducted the draft soldier/operator Training Program for the first time and exercised and tested JBREWS equipment in the first total system Integration Test. The DFT culminated with a 55-hour field test. Because of the weather, developers were able to observe their equipment operating under extreme cold conditions that stressed the equipment to its limits. This DFT was a crucial test in preparation for the JBREWS Advanced Concepts Technology Demonstration that will be held later this year.

AN/UDR-13 – The contractor, APTEC-NRC, delivered 497 Pocket Radiacs recently. They are now 7 months ahead of schedule.

M8 and M9 Chemical Agent Detector Paper – The TACOM-RI, in association with SBCCOM-RI Detection/Decon Team, recently awarded a 5-year requirements contract for the M8 and M9 Papers to Truetech Inc. The first order under this contract is 244,000 booklets of M8 Paper. Truetech also is currently delivering M9 Paper on a previous contract. Both M8 and M9 Papers are on the "Chemical Defense Equipment Go-to-War Program." This contract was awarded on a full and open competitive basis.

Individual Protection –

M40/M42 Series Mask –

• Work has begun on the Scope of Work that will be used to inspect, and possibly convert, some older M40 masks currently in War Reserve to change the condition codes back to "A."

• Single Piece Hoods – The final remaining 13,031 single piece hoods, have been issued. All subsequent hood requisitions will now be filled using the replacement quick doff hood, which is worn with the universal second skin. Unlike many of the superseded items, all of our single piece hood stock was issued after the replacement hood was available rather than disposing of them. This eliminated significant cost impact on the Army Working Capital Fund.

• Internal Drink Tubes – There are now two different internal drink tubes, which may be found in some of the M40A1 Field and M42A2 Combat Vehicle Protective Masks issued after January 1998. The two internal drink tubes are not interchangeable; therefore, a Chemical Newsletter article has been published, a PS magazine article is forthcoming, and 2028s (recommended changes to equipment technical publications) have been submitted for incorporation into the next change to technical manual Repair Parts and Special Tools List. A Maintenance Advisory Message will also be transmitted in an effort to inform customers about the two different internal drink tubes.

• C2A1 Canister – In January, SBCCOM-RI through TACOM-RI awarded a 5-year requirements contract for C2A1 Canisters to Canadian Commercial Corporation/3M Canada Company. This was the first TACOM-RI best value solicitation using oral proposal presentations in lieu of written proposals. This method was very effective as it required face-to-face communications between the government and offerors, which simplified and expedited the evaluation process. The first delivery order was issued on January 12th for

208,500 each C2A1 Canisters totaling $1,872,330.00. Initial delivery of 33,500 canisters is scheduled for June 15th with 35,000 canisters delivered monthly thereafter until completion of the order.

M43 Mask –The BA-5093 battery life testing with the M43 Mask was conducted at Pine Bluff Arsenal. The first lot of batteries tested exceeded the 8-hour requirement. The Communication and Electronics Command (CECOM) has extended the shelf life of the Army's stock of BA-5093s as far as August 2000.

M48 Chemical Biological Apache Aviator Mask – Due to delays in fielding the M48 Mask, the Mask Core Team (MCT) is planning to continue logistics support for the M43 Mask. The shelf life of the M43 Mask BA-5093 battery is scheduled to expire in March 2000. This battery is only used in the M43 Mask and has not been produced since 1992. SBCCOM has taken action with the CECOM to perform shelf-life testing to determine the status of the current stockpile. The CECOM has expressed their reluctance to formally extend the shelf-life beyond March 2000. The MCT is also working with CECOM to initiate a new production buy of the BA-5093 battery.

Joint Service Lightweight Integrated Suit Technology (JSLIST) –

• In November, the Office of the Deputy Chief of Staff for Operations and Plans, in a memorandum agreed to immediately release 24,000 JSLIST suits to support a Navy request. As of 30 Nov 99, 10.9K Desert JSLIST Coats and 13.4K Desert JSLIST Trousers were issued from the Army War Reserve stock to the Navy. These issues reduced the on-hand balance of the JSLIST Coat and Trousers by 85% and 65%, respectively. This will have a significant impact on the fielding of the JSLIST for the Firefighters Integrated Suit - Combat (FIS-C). This fielding must be delayed because there is only one size of Desert JSLIST Coat available at this time.

• An Integrated Product Team (IPT) meeting was held at the Pentagon to determine the Army transition strategy from Battle Dress Overgarments (BDO) to JSLIST. The focus of the IPT was to solve the size shortages in the BDOs and find the best options for the JSLIST transition while keeping within the guidelines of the CSA's guidance to maximize use of remaining BDO shelf life. The undersigned attended as a representative for the Army Chemical Defensive Equipment Go-To-War Program, of which the BDO/JSLIST are an important part. The CDE program hopes to purchase a combination of BDOs and JSLIST. CDE JSLIST would be bought exercising options on the OSD contract that would not impact current OSD acquisition projections.

Permethrin Treated Uniforms – PM-ESS representatives conducted survey data collection from over 150 soldiers of the 509th Airborne Battalion, in November. The soldiers have been wearing the factory treated uniforms, which kill insects and prevent bites and stings. While the data is not yet final and additional surveys will be required, many soldiers thought the uniform worked well and was worth the money for the treatment. This was the mid-point survey.

Extra Extra Large Chemical Protective Undergarments (CPU) – All Chemical Activities/Chemical Depots have now received their requirements of XX Large CPU. The CPUs were shipped directly to the CA/CD by the vendor. A total of 600 pairs of the CPU were shipped to the CAs/CDs at a cost of $230 per pair. This quantity will satisfy SBCCOM demand for XX Large CPU through FY01.

Improved Rain Suits (IRS) – PM-Soldier Equipment provided soldiers of the 1042nd Medical Co. with IRS. The unit deployed to Bosnia in February during a very wet and somewhat cold time of the year. The IRSs were provided within 2 weeks from stock through an existing SBCCOM contract.

Microclimate Cooling Unit (MCU) – In January, Natick Soldier Center awarded a contract to Foster Miller, Inc., for the development of an MCU for the Air Warrior Engineering Manufacturing Development program. The MCU will be designed to interface with the U.S. Army's UH-60, OH-58D, and CH-47D rotary-wing aircraft, providing heat stress relief to the pilot, co-pilot, and aircrew who are wearing Mission Oriented Protective Posture (MOPP) IV protective clothing.

Collective Protection –

Fixed Installation Filters – Safety confirmation memo for the M49 Fixed Installation Filter, 120 CFM, 600 CFM, and 1200 CFM was provided by the U.S. Army Developmental Test Command. This safety confirmation memo addresses that there are no safety and health concern issues identified in using the fixed installation filters.

M18A1 Gas Filter – In January, a delivery order was awarded for a requirements contract for 1,357 with first delivery of 350 scheduled for July 2000. The M18A1 Gas Filter and the M19 Particulate Filter are key Components of the M13A1 NBC filter system. The M13A1 uses one M19 and two M18A1s to provide purified air to Individual vehicle crew members when Positive cabin pressure cannot be maintained. There are various applications for the M18A1/M19 filter set including the Abrams tank.

Decontamination –

M295 Decontamination Kits – Truetech, Inc. has begun production of M295 Decontamination Kits filled with a new sorbent powder. Under a modification to the contract, Truetech will produce 9,000 boxes of M295 kits. A new solicitation for a 5-year requirements contract for the M295 Kit was extended to January 14th due to a minor engineering change.

Joint Service Sensitive Equipment Decontamination (JSSED) – The JSSED Team visited Entropic Systems, Inc. and Advanced Sterilization Products' to investigate recent developments in two technologies identified by the JSSED Technology Assessment IPT and determine if these technologies remain applicable to JSSED prototype development.

SMOKE SYSTEMS

Coyote Smoke Generator, M56 –

• The contract modification for M56 production in FY00 was signed by the AMC Acquisition Center in November. Deliveries begin in Oct 00 and are complete in Dec 00. Seventeen systems will be delivered.

• The Bidder's Conference for the Millimeter Wave (MMW) development contract was held in December. The Government stressed that they will partner with industry to develop a millimeter wave smoke module that will meet or exceed requirements. All contract actions are on schedule for a contract award in August 00.

• General Dynamics Robotic Systems (GDRS) delivered 13 M56 Smoke Generating Systems for fielding to Ft. Jackson, SC. This brings the total M56 production to date to 255. GDRS also delivered 2 spare control panels for use on the control panel training system.

M90 Smoke Grenade – Full Material Release of the M90 Smoke Grenade was approved in March. The M90 Grenade is primarily fired from the Light Vehicle Obscuration Smoke System.

STANDARDS/SPECIFICATIONS:

In our role as custodian and review activity for standardization documents prepared by other agencies, the following documents were reviewed and comments were forwarded to the responsible preparing activities:

Reinstatement of MS14303, MS14304, MS14306, MS 14307, MS14308, MS14309, MS14310, MS14311, MS14312, MS4314, and MS14315, by the Defense Supply Center Columbus.

Cancellation of L-P-513, Plastic Sheet and Insulation Sheet Electrical (Laminated Thermosetting Paper Base Phenolic Resin) and replacement with an American Society for Testing and Materials (ASTM) standard by U.S. Army Materiel Systems Analysis Activity.

Cancellation of MIL-P-38477A(USAF), Plastic Materiel, Pressure Sensitive Adhesive, For Aerospace Identification and Marking and replacement with a Commercial Item Description by U.S. Army Materiel Systems Analysis Activity.

Reviewed ASTM D5631-99, Standard Practice for Handling, Transportation, and Storage of Halon 1301, Bromotrifluoromethane (CF3Br). Forwarded comments to ASTM Committee D26 on Halogenated Organic Solvents.

Reviewed Federal Specification, Thionyl Chloride, O-T-370, dated 21 Nov 62; recommended the document be canceled since chemical item is no longer procured.

SUPPLY BULLETINS:

A total update to SB 740-94-5 covering Masks, Chemical-Biological (All Types) and Ancillary Items was completed and hard copies published. The official publication date shown on the newly release SB is 30 November 1999 and replaces the SB dated November 1986. This new release is part of an initiative to update all CDE SBs. The updated SB incorporates common wording for section 1 and 2 that will be used in all the updated CDE SBs. Among other things, shelf life codes have been corrected for numerous items. Surveillance data for the C2/C2A1 canister have also been updated.

ENGINEERING DATA MIGRATION MOVES FORWARD

In January, representatives from the Natick Soldier Center involved in the Engineering Data migration effort met and worked out agreements and a time frame to support the next stage of events leading to the Feb 00 test at ECBC. The data migration effort will result in an RDA Enterprise virtual engineering data management system managed at ECBC. More than $1M will be saved by eliminating the need for separate data systems at each location.

MAINTENANCE ADVISORY MESSAGE (MAM)

TACOM Control No. MAM-00-003
For all M998 series High Mobility Multipurpose Wheeled Vehicles (HMMWV)

1. Distribution: This is a "Maintenance Advisory Message." Request TACOM Commanders retransmit this message to all subordinate commands/activities.

2. Issue: The Glow Plug Controller (GPC) NSN 2920-01-175-7214 is improved by the addition of a voltage compensating feature that prevents early glow plug failure. GPC's with this feature can be identified by the gray colored connector and the serial number 451972 and higher.

3. A previous message instructed personnel to replace the protective control box (PCB) with a distribution box if the GPC failed. Disregard that information and discontinue any such practice. Changes have been incorporated into the GPC that change the way it functions. The changes allow the GPC to sense available voltage and adjust glow plug on time accordingly. A time out feature was also added to prevent reenergizing the preglow cycle before the glow plugs have sufficient time to cool. Incorporating these two features has extended glow plug life.

4. GPC's that have the new features can be readily identified by the gray color of the electrical connector and/or the serial number 451972 or higher on the manufacturers label. In preparation for the upcoming winter, units that normally experience high usage of glow lugs, are strongly encouraged to replace the GPC with a voltage sensitive GPC.

5. User actions: maintenance personnel are reminded to perform glow plug troubleshooting whenever a vehicle is reported to run rough at cold idle, have excessive black smoke when cold, or hard starting. If troubleshooting indicates failure of the GPC then replace the GPC rather than the PCB and or other serviceable component.

6. Unit commanders, contact your local TACOM Logistics Assistance Representative (lar) or your state Surface Maintenance Manager upon receipt of this message for assistance. If you do not know who your TACOM LAR is, for CONUS call DSN 367-6204/6293, for Germany call DSN 375-6128/7436 and for Korea call DSN 315-722-3036/3881. LARs are available to help you.

7. TACOM/PM Actions: The technical manuals currently contain adequate troubleshooting and maintenance instruction. The NSN for the controller has not changed; however, the connector color was changed to gray for identification of the voltage sensitive controller.

8. Supply Status: Currently adequate stock of the controller is available to support the HMMWV fleet through March 2000 and a follow on buy is in progress to provide support through the calendar year.

9. POC'S:
A. For maintenance issues, Mr. Daniel Dudek, AMSTA-LC-CHL, DSN 786-6203, Commercial (810) 574-6203, e-mail; DUDEKD@TACOM.ARMY.MIL

B. For engineering issues Mr. James Alvarez, AMSTA-TR-E/LTV, e-mail; ALVAREZJ@TACOM.ARMY.MIL, temporarily unavailable by telephone.

BRIEFS

DOMESTIC PREPAREDNESS. Our Domestic Preparedness training continues. All six train-the-trainer courses have been revised based on input from the cities, the instructors, and the Domestic Preparedness team. The revisions were taught in Arlington and Corpus Christi in November. Both cities were happy with the course materials, instructors, and the program.

CW IMPROVED RESPONSE PROGRAM (CW IRP). The CW IRP attended a National Fire Protective Association (NFPA) coordination meeting to discuss the latest (revised) version of NFPA 1994; "Standard on Protective Ensembles for Chemical and Biological Terrorism Incidents." This document is expected to set the standard for the design, performance, testing, documentation, and certification of protective ensembles for first responders responding to chemical and biological terrorism incidents. This latest revised version was based on the CW IRP "Guidelines for Incident Commander's Use of Firefighter Protective Ensemble with Self Contained Breathing Apparatus for Rescue During a Terrorist Chemical Agent Incident."

NATICK SOLDIER CENTER HOSTS MEETING WITH JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY ON FOOD SAFETY INITIATIVE. In November, NSC DOD Combat Feeding program hosted a visit of lead scientists from JHUAPL to discuss the new APL food safety initiative. After a seminar outlining APL capabilities in biosensors and other detection devices, NSC and APL representatives discussed technologies appropriate for ensuring food safety and countering bioterrorism threats. Both NSC and APL participated in the December interagency conference on Reducing Foodborne Illness in Washington, DC. Following that meeting, NSC representatives visited APL to begin planning for active collaboration in developing and testing leading edge food safety assurance technologies.

BRIEFING TO SPECIAL OPERATIONS & LOW-INTENSITY CONFLICT (SOLIC). In December, SBCCOM (NSC), by invitation, provided a detailed overview on the DOD Combat Feeding Program (CFP) to the SOLIC Assistant for S&T and his staff. A separate technical briefing was provided on our Food and Water Safety initiative with emphasis on biosensors. There was a special interest by SOLIC on present NSC efforts in the development of whole food detection systems. Emphasis was placed on the need for real-time detection systems to meet SOLIC program objectives. As a result of these briefings, the SOLIC Assistant for S&T invited the CFP to become a member in their Technical Support Working Group. SOLIC's Broad Agency Announcement has already been provided to the CFP to energize our potential contribution.

DOD MULTIPLE PROJECT ASSURANCE FOR THE PROTECTION OF HUMAN SUBJECTS. In November, the Edgewood CB Center's Hazards Surveillance Office successfully renegotiated their Multiple Project Assurance (MPA) for the Protection of Human Subjects. The MPA allows the ECBC Human Use Committee to review study protocols involving human subjects that are conducted or sponsored by ECBC. The center has been assigned DOD MPA Number DOD-20065, which is valid through November 15th, 2004.

NASA AMES SENSORS 2000! On November 30th, SBCCOM (NSC) sponsored a NPC government partners meeting to identify common areas of interest and leveraging. The NPC stand-up strategy was discussed and will be further defined by the joint government NPC team. Of particular interest were the areas of nanotechnology, multifunctional materials and electro-spinning as stand-up technology working packages. NASA reps expressed high interest in all other technical areas presented such as, personnel status monitoring,

biotech and shelters as they directly related to life in space requirements, and will be followed up by the SBCCOM (NSC) team.

COMMITTEE ON STRATEGIES TO PROTECT THE HEALTH OF DEPLOYED FORCES. On November 30th, SBCCOM (NSC/ECBC) participated in a sponsor panel to provide feedback to the National Academy of Sciences-Institute of Medicine Committee's report on Force Protection and Decontamination. The report is the product of a two-year study conducted in response to a DoD request for input to a long-term strategy for protecting the health of military personnel when deployed to unfamiliar environments. The input provided by the panel will be used to refine the Committee's charge for the third year of the study and to plan necessary information gathering before the Committee makes its final recommendations.

POLLUTION PREVENTION IN ACQUISITION (P2IA) PROGRAM. On January 24th, SBCCOM (NSC) and others representing Edgewood and Natick presented two briefings to Command personnel. The first briefing provided an update of the current and planned activities of the SBCCOM P2IA Integrated Process Teams (IPTs) comprised of Command and Working Level (WL) IPTs (Edgewood and Natick). The second briefing provided an update for personnel of PM-Force Provider and PM-Soldier Support related to a PPIA initiative for a Zero Footprint Camp (ZFC). ZFC represents a unique method of managing environmental, safety, and health requirements which will also result in reduced operating costs.

PM SOLDIER LIFE CYCLE SYSTEM REVIEW. A Life Cycle System Review was conducted at Fort Benning, GA, in January. Ongoing Clothing and Individual Equipment (CIE) and the Soldier Enhancement Program (SEP) were briefed. Thirteen proposed SEP initiatives were presented with eight being adopted.

MILITARY EXERCISE. ECBC personnel have been funded by the U.S. Navy Central Command to travel to Bahrain in March 2000. ECBC personnel will work with US Navy personnel on CB defense during Neon Falcon, a joint United States and Bahrain military exercise.

MOBILE ANALYTICAL LABORATORY SYSTEM (MALS). Mobile Analytical Laboratory System (MALS) is the mobile laboratory confirmation/analysis component of the National Guard Civil Support Team (CTS), formerly RAID. The ECBC is currently supporting the MALS by training the first ten MALS operator groups on the operation of the chemical analysis equipment; designing and then procuring the sample isolation glove-box, sample collection and chemical preparation kits; integrating equipment into the vans; and shipping the vans to the ten CSTs. The Technical Assistance Team is the program manager for this effort while the Forensic Analysis Center is the technical leader.

COOPERATIVE R&D WITH INDUSTRY AND ACADEMIA

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

Northeastern Maryland Technology Council (NMTC)

For additional information on the NMTC, visit their web site at www.geosol.com/nmtc/index.htm

Cooperative R&D Agreement (CRADA)

In December, the Natick Soldier Center signed a CRADA with ICET and DeWAL to jointly develop a chemical and biological (CB) agent self-deactivating membrane fabric system. ICET is to prepare various membrane formulations with different ratios of biocidal and reactive materials in DeWAL's polymer matrix. NSC is to provide guidance, testing, and evaluation. Intermittent reports will be provided every 6 months to measure technical progress. It is anticipated that this CRADA will not exceed four years. The expected benefit will be self-decontaminable fabric systems that will improve the soldier's survivability in a CB agent contaminated environment.
POC: Quoc Truong, Natick Soldier Center, DSN 256-5484

In January a meeting was held at Massachusetts Port Authority (MASSPORT) Fire and Rescue Headquarters at Boston's Logan Airport. This meeting was requested by the Chief Medical Examiner for the Commonwealth of Massachusetts. Attendees included Deputy Secretary for the Massachusetts Executive Office for Public Safety (EOPS). The Natick Soldier Center's representative briefed the mission, function, and structure of our National Protection Center (NPC). The Massachusetts Center of Excellence Concept and the NPC have similar and complimentary missions and objectives. Further discussions will be conducted to build a partnership that will benefit military, federal, state and local emergency response personnel. The Natick Soldier Center has an on-going CRADA with EOPS.

POC: Bill Haskell or Rita Gonzalez, Natick Soldier Center), DSN 256-4477 or 256-5571

In January, Edgewood reached agreement with Intelletec on the Advanced Integrated Collective Protection System (AICPS). With DOD funding no longer available for this system's development, the objective of this project is to leverage private-sector investment to identify other applications/customers for the system, eliminate or reduce design shortfalls, and examine the possibility of improving it for military and commercial use. If successful, Intellitec will upgrade the XM31 design and pay royalties to the Edgewood Center for use of the technology.

The CRADA with Quicksilver is ready for signature. The parties have reached agreement on terms to collaborate in the fielding of a dual-use Chemical Biological Sampling Kit that will be made available to First Responders, Hazmat Teams, Firefighters, Law Enforcement Personnel, etc. Edgewood will continue to develop and improve upon the CB Sampling Kit and related technology, with Quicksilver contributing manufacturing expertise to jointly field a dual-use product based upon this technology. QuickSilver will pay ECBC a fee when the CRADA is approved and, on a quarterly basis, a dollar amount per kit manufactured by or for QuickSilver.

New Task funded under Battelle CRADA. Battelle will provide for support from work at the Edgewood CB Center on CB protection of buildings and other shelters.

Testing Services Agreement (TSA)

Mr. Albert presented the Edgewood CB Center's capabilities to support contractors who may

propose Test Service Agreements relative to the Joint Biological Point Detection System (JBPDS) at the JBPDS Advance Planning Briefing for Industry in February.

New TSA formed with Barringer Instruments for testing of IONSCAN instruments for chemical agent characterization.

A TSA with Environmental Technology, Inc., was approved by the Technical Director. The purpose of this TSA is to test the safety and reliability of pyrotechnic delay compositions and devices.

A TSA with Graseby was approved by the Technical Director. The purpose of this TSA is to test the ACADA.

Patents

Patent License Negotiation with Purified MicroEnvironments is near agreement for the Transportable Glovebox and Filtration System invented by Charles Henry, et al. License terms will include an initial payment, minimum annual payments, and royalties.

Zumro, Inc., filed a European Patent Office application to protect our Chem-Bio Explosive Containment System in the European market. Zumro is actively marketing the product. Two units were sold to the City of San Francisco, with future domestic and foreign sales expected. ECBC receives a 10% royalty per the License Agreement.

The Edgewood CB Center is the first and only government agency to be included in the NDIA Defense 21 Virtual Exhibit on their web site. To view, go to www.ndia.org . Click on Defense 21, then Alphabet List, U.S. Army Edgewood CB Center.

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

TECHNICAL INDUSTRIAL LIAISON

Advance Planning Briefing for Industry

The next DOD CB APBI is scheduled for September 19-21, 2000, at the Edgewood Area of Aberdeen Proving Ground. The APBI will consist of two days of briefings providing an overview of the DOD CB program with emphasis on future contracting opportunities. On the third day, an IR&D Conference will be held to allow companies the opportunity to present their internally funded R&D programs as they relate to CB defense to a panel of government scientists. The APBI will also include government displays and tours of Edgewood's facilities.

Small Business Innovation Research (SBIR)

The following 6-month Phase I contracts were awarded in December 1999 as a result of proposals received in response to the **FY 99.2 DoD Solicitation,** which closed in August:

From the Edgewood CB Center:

EIC Laboratories	Molecularly Imprinted Polymers for Aqueous Protein and Pathogen Recognition
F&S, Inc.	Molecular Polymers Designed for Harsh Environment Field Use Applications
TACAN Corp.	Molecularly Imprinted Sol Gels for Reagentless Protein Recognition

Mesosystems Technology	Microfluidic Biodetection System for Personnel Monitoring
Microgen Systems	Nanosensor: a Fully Automated Microfabrication Based Biodetector
Radiation Monitoring	Low-cost, Microfabrication-based, Biodetectors: Integrating MicroAPD Detector Arrays with Microfluidics
PLT, Inc.	Laser-coupled, Multi-site, Microfabrication-based Biosensor Platform

From the Natick Soldier Center:

Biopraxis, Inc.	Doodlebug - Solid-state Biosensor for Food Safety
Satcon Technology	An Ultra-sensitive Optical Biosensor for Food Safety
SPEC	Hand-held Fluorometer Incorporating Selex DNA Aptamers as Molecular Recognition Components for Foodborne Pathogens
Metss Corp.	High-speed/low-cost Impermeable Seaming for Synthetic Tentage and Collective Protective Shelters

The **00.1 DOD Solicitation** closed on January 12, 2000. The proposals have been evaluated and 11 have been selected for funding. The proposals address the following topics:

From the Edgewood Chemical Biological Center:

- ◆ Miniaturized Sample Preparation Module
- ◆ Improved Sensitivity for Chemical and Biological Standoff Detection (2 proposals selected)
- ◆ Detection and Identification of Buried or Concealed BW Agents and Simulants using Nuclear Quadrupole Resonance Spectroscopy
- ◆ Chemical and Biological Water Monitor (2 proposals selected)
- ◆ Development of a Miniaturized Biological Detector
- ◆ Development of a Miniaturized Chemical Detector
- ◆ Chemical Immobilizing Agents for Non-Lethal Applications

From the Natick Soldier Center:

- ◆ Biological Warfare Agent (BWA) Deactivating Textile Systems for Chemical/Biological (CB) Protection
- ◆ Chemical Protective Gloves with Enhanced Properties

We are now working on topics to be included in the **00.2 DOD Solicitation** which will go out this summer. Look for these topics in that solicitation:

From the Edgewood Chemical Biological Center:

- ◆ Nontoxic Biodegradable Nanofibers for Signature Reduction
- ◆ Combinatorial Screening of Synthetic Nanomaterials for Cml/Bio Agent Detection
- ◆ Stabilization of Enzymes for the Destruction of Toxic Materails and Chemical Agents
- ◆ Compact, Lightweight, Modular Infrared Spectroscope for Cml and Bio Agent Detection

From the Natick Soldier Center:

- ◆ Soldier Conformal Antenna Suite
- ◆ Flexible Photovoltaics for Fabric Structures
- ◆ Cogeneration of Heat and Electricity for Military Equipment
- ◆ Flame/Thermal Protective Fabric Test Apparatus
- ◆ Self-Deploying Tentage for Smart Cities
- ◆ Thermoacoustic Refrigeration of Large Food Storage Containers

A **Phase II SBIR** has been awarded to Federal Fabrics-Fibers of Lowell, MA, for continued work on their lightweight, low cost, chemical biological protective shelter material. Their Phase I contract demonstrated novel techniques for manufacturing polymer coated, high-strength fibers and extrusion casting thermoplastic fluorpolymer films onto ultra-wide flat fabrics. These technologies will result in a fabric with higher durability and lower weight at approximately half the cost of the currently used shelter material. Development of this material has focused on meeting requirements for JTCOPS (Joint Transportable Collective Protection System).

Natick Soldier Center participated in a kick-off meeting on a **Phase II SBIR** for an automatic activation device (AAD) for static line parachutists. This device is meant to be used when a static line jumper is unable to activate his reserve parachute manually. There is very little time to determine whether or not a malfunction exists when jumping from altitudes as low as 500 feet above ground level in combat operations. This device uses sensors and software algorithms to determine what state the jumper is in. Phase I of the program successfully demonstrated the feasibility of the concept. Phase II will finalize the design of the hardware and algorithms and then continue the testing at Yuma Proving Grounds to produce a low-cost reliable AAD for personnel static-line airdrop.

Edgewood SBIR POC: Mr. Ronald P. Hinkle, DSN 584-2031
Natick SBIR POC: Mr. Gerald Raisanen, DSN 256-4223

INTERNATIONAL COOPERATIVE R&D

The Technical Cooperation Program (TTCP)

Dr. Ngai Wong, Edgewood CB Center, visited the Defense Research Establishment, Quebec, CA, in November to attend TTCP Meeting on Chemical Biological Defense, Action Group 46, Passive Standoff Chemical Detection.

A Project Arrangement (PA) under a TTCP MOU has been prepared, staffed at ECBC, and submitted to AMC for further staffing for the request for authority to develop (RAD). The PA, to be administered under the Chemical, Biological and Radiological Defense (CBD) Group, will address the joint test and evaluation of chemical and biological defense materiel, equipment, and samples, and is intended to expedite the collaboration already occurring under the CBD Group auspices. The PA will be applicable to any activity currently underway in the CBD Group, including those efforts at Natick (TP-11), DPG (TP-9), and DTRA (AG-44). Because of the complexity of the PA, implementation is not expected for approximately 1 year.

For general information on TTCP, visit their web site at http://www.ttcp.osd.mil

U.S./FR Working Group on NBC Defense

The annual meeting of the U.S./French Working Group on Nuclear, Biological and Chemical Defense was held in January at the Edgewood CB Center. The meeting was co-chaired by Mr. Jim Zarzycki and IGA Gilles Fernandez, and reviewed the current exchanges and activities under the data exchange agreements, two loans, and one project agreement dealing with chemical and biological defense.

U.S./GE Science and Technology Working Group

Dr. Wes Kitchens and Mr. Elmar Goebels co-chaired the second meeting of the U.S./GE STWG at the Edgewood CB Center in January. The meeting addressed increasing cooperation between the two countries in basic and applied research.

Bilateral Agreements

Data Exchange Annexes (DEAs)

The Edgewood CB Center hosted the next U.S./France General Officers' Working Group meeting on NBC Defense in January. Mr. Zarzycki is the U.S. Representative; IGA Fernandez, Director, Centre d'Etudes du Bouchet, is the FR Representative. Mr. Zarzycki and IGA Fernandez were briefed on the status of our four DEAs: Defense Against BW Agents; Detection Methods of CW Agents; Defense Against Chemical Agents; and Chemical Agents); and our Project Agreement on the Laser Standoff Chemical Detector. In addition, general discussions were held in the area of Cooperation in Biological Detection.

Dr. Michael Siebrand, Mr. Elmar Goebel, Mr. Helmut Heuer, Mr. Andreas Zekorn, Mr. Detrich Sellke, and Mr. Gerhard Brauer, GE, visited SBCCOM/ECBC, 20 Jan 00, to attend the January 2000 AMC/BWB Science and Technology Steering Committee Meeting. This visit took place under the auspices of DEAs: Defense Against Chemical Agents; Defense Against Biological Warfare; and a Project Agreement on Mass Spectrometer Technologies.

Mr. Gilbert Magnaud, FR, visited SBCCOM/ECBC, to have meetings and discussions pertaining to the French DEA for Defense Against Chemical Agents.

IGA Gilles Fernandez, COL Lucien Coppet, COL Bruno Despagne, and MAJ Quang Vu, FR, visited SBCCOM/ECBC, to attend the General Officers Working Group Meeting and to tour ECBC. This visit was under the auspices of DEAs on Defense Against Biological Warfare Agents, Detection Methods of Chemical Warfare Agents, Defense Against Chemical Agents, Chemical Agents, and a Project Agreement on Laser Standoff Detection.

Information Exhange Agreements (IEA)

Dr. George Famini visited the Singapore Centre for Chemical Defence (CCD) under the recently signed an IEA with Singapore (SN). The SN hosts for the visit were Dr. Lee Fook Kay and Dr. Koh Cheng Heng, the Head and Deputy Head, respectively, of CCD. During the visit, a significant amount of time was spent in the CCD laboratories talking to the principal investigators, and seeing what current projects were underway. Key projects at CCD include establishment of CCD as an OPCW certified Treaty Analysis Laboratory, water purification and monitoring, biological detection, novel adsorbents, and new clothing polymers. There was a detailed discussion regarding cooperation in the research leading to the development of a new technology for the monitoring of chemical agents in water. SN has a significant capability in this area, and it was felt that a project agreement focusing on cooperation in water monitoring was worth taking forward. In addition, the SN MOD and civil defense authorities expressed a great deal of interest in the efforts being undertaken by SBCCOM in CB domestic preparedness training. Further contact is expected relative to both a PA in water monitoring and DP training.

Mr. Tan Yam Peng, Singapore, visited SBCCOM/ECBC, 2 Dec 99, to discuss the potential Technical Research and Development Project on Chemical and Biological Defense. This visit came under the auspices of IEA-A-98-SN-1583; titled Detection, Monitoring, Protection and Destruction of Chemical and Biological Agents.

Memorandum of Agreements (MOA)

Dr. Bernhard-Christoph Halstrup and 18 others, Germany, will visit SBCCOM/ECBC and General Dynamics Land Systems Inc, Sterling , MI, on an intermittent basis, 10 Dec 99 to 9 Dec 00. The purpose for these visits will be to attend FOX NBC meetings and tests to be carried out. These visits will take place under the auspices of the Memorandum of Agreement on Logistic Support for the Nuclear, Biological, and Chemical Reconnaissance System.

The UK hosted the MOU on research, development, production and procurement of CB defensive material meeting of the Program Officers/Requirements Officers (PO/RO) in March. Topics covered were the ongoing International Task Forces (ITFs), the current Points of Contact Groups and Working Groups. In addition, current cooperative efforts with the UK and CA were briefed.

Two loan agreements between ECBC and the Centre d'Etudes du Bouchet, due to expire in mid-February, were submitted to OSD for 1-year extensions. The first loan, providing a liquid evaporation aerosol particle sizer to France for testing purposes was delayed due to difficulties with export requirements. The second loan concerning a reciprocal transfer of masks was delayed due to delays in France. Both of these issues have been successfully addressed, but the time required made it impossible for the testing to be accomplished. As part of each loan, the U.S. will receive a test report detailing the conditions under which the test was done, underlying assumptions, and test results and conclusions. The extensions expired in February 2001

A project agreement under the U.S./Singapore Technology Research and Development Program (TRDP) MOU has been submitted to the ECBC International Integrated Product Team (I-IPT) for staffing and approval. The agreement focuses on a collaborative and cooperative effort in the area of CB agent water monitoring, and is intended to leverage activities that have occurred at the Singapore DSO National laboratories over the past 5 to 6 years. After review and concurrence by the I-IPT, the PA will be staffed to AMC, DA, and eventually OSD. A September to November implementation date is expected

Visits

In November:

Dr. Ngai Wong, Edgewood CB Center, visited the Royal Australian Air Force Base, Edinburg, Adelaide, AS, to attend the Air Standardization Coordinating Committee Working Party 61 Meeting.

MAJ Joseph Kiple, Edgewood CB Center, visited the Defense Establishment Research Agency, Salisbury, UK, to attend a Decontamination Testing Meeting.

In December:

Mr. Romel Gallamoza, Edgewood CB Center, visited V Corps, Heidelberg, GE to provide JWARN Phase 1C training to V Corps and other units from USAREUR.

Dr. Skoumal Miroslav, Czech Republic, visited Edgewood CB Center to discuss joint testing data methods for trace analysis of toxic materials in the environment.

In January:

Mr. Paul A. Norman, UK, and Dr. Paul A. D'Agostino and Dr. Thor V. Jacobson, CA, visited SBCCOM/ECBC, to attend the ITF-36 Meeting. This visit took place under the auspices of the U.S./UK/CA MOU on Chemical and Biological Defensive Materiel.

In February:

Mr. Matthijs Leeuw, Netherlands, visited SBCCOM/ECBC to have meetings and discuss the subject of Mutual Interest in the Framework of Biological and Chemical Defense. This visit will take place under the auspices of a DEA entitled: Defense Against Chemical Agents and Data Exchange Annex, and a DEA, entitled: Defense Against Biological Weapons.

Mr. Bjoern Arne Johnson and Mr. Jan Henrik Blanch, Norway, visited the Naval Surface Warfare Center, Panama City, FL to discuss Defensive Aspects of Chemical and Biological Warfare. Discussions were held under the auspices of NATO Defense Aspects of Chemical and Biological Warfare. Mr. Richard Ramey was the Naval Surface Warfare Center point of contact for this visit.

MAJ Mark Shelford and 3 others, United Kingdom, visited the U.S. Army Medical Research Institute of Chemical Defense (MRICD) to attend the meeting of NATO Land Group 7, Skin Toxicity Team of Experts. This visit took place under the auspices of NATO Land Group 7.

Dr. Emory Sarver and Mr. Jeffrey Hinte, SBCCOM/ECBC, visited Canada to meet with Mr. John Bureaux, to participate in a planning meeting hosted by the Technical Response Group to lay out their annual work plan for 2000. U.S. participation is supported by the Technical Support Working Group.

Mr. Peter Biggins, Mr. Kenneth Reid, and Mr. Paul Jeffrey, United Kingdom, visited SBCCOM/ECBC the last week of the month to attend the Test and Evaluation Working Group Meeting. The visit took place under the auspices of the U.S./UK/CA MOU on Chemical and Defensive Materiel. Mr. Michael Smith was the point of contact for this visit.

Ongoing During 2000:

Mr. Yacov Shanti Israel, will visit the U.S. Army Medical Research Institute of Chemical Defense, Edgewood, MD, on an intermittent basis, to work in the labs on prophylaxis with butyryl cholinesterase and low-level long-term exposures to chemical warfare agents.

Mr. Joergen L. Hansen and 10 others from the United Kingdom, will visit SBCCOM/ECBC intermittently, to give demonstrations, training, and maintenance of velocity measuring equipment. This equipment is used to measure velocity of all kinds of projectiles and ammunition.

Mr. Harald Glelm and 10 others, Germany, will visit SBCCOM/ECBC, Ft Leonard Wood, MO, Ft Polk, LA, Ft Hood, TX, General Dynamics, Sterling, MI, and Ft Carson, CO. The purpose for these visits will be to attend FOX NBC meetings and tests to be carried out. These visits will take place under the auspices of the MOA on Logistic Support for the Nuclear, Biological, and Chemical Reconnaissance System.

Ms. Emma Foot, United Kingdom, will visit SBCCOM/ECBC, 2-3 Mar 00, to attend a meeting on the testing of the Massachusetts Institute of Technology Sensor System. This visit will take place under the auspices of the U.S./UK/CA MOU on Chemical and Biological Defensive Materiel.

Engineer and Scientist Exchange Program

The nomination for Mr. Sok Chong Oh of the Agency for Defense Development (ADD) of South Korea has been submitted to the ECBC I-IPT for staffing and approval. Mr. Oh has been selected under the US/KS Engineer and Scientist Exchange Program (ESEP) to spend a 1-year development assignment at ECBC. Mr. Oh's assignment will be with the Passive Standoff Detection Team, and will be related to developing novel technologies for remote passive sensing technologies for chemical and biological agents. Once approved by the I-IPT, the nomination package will be submitted to AMC for final staffing and approval. A start date for Mr. Oh is expected to be in the Sep-Oct timeframe.

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

JSGPM TEAM FINALIST
FOR
DAVID PACKARD EXCELLENCE IN ACQUISITION AWARD

In late February, the Joint Service General Purpose Mask (JSGPM) Acquisition Team was notified that they are one of five finalists for the ***David Packard Excellence in Acquisition Award***. This is an Office of the Secretary of Defense award, which recognizes organizations, groups, and teams that have demonstrated superior accomplishments contributing to best acquisition practices completed during the previous calendar year. The winner will be announced in mid-April 2000. The award presentation will be in the Pentagon center courtyard on May 22nd, 2000.

Joint Service General Purpose Mask Integrated Product Team

The JSGPM Acquisition Team was nominated in the category of "contracting" for the preparation of the benchmark "cradle to grave" request for proposals (RFP), supporting documentation, and all the activities conducted between August 1998 and December 1999.

The JSGPM Team was established by the Project Manager, Nuclear, Biological and Chemical Defense Systems and designated by the Joint Service Materiel Group to be the lead service for materiel development for a new protective mask. This new mask will be a revolutionary lightweight protective mask system incorporating new technologies to protect U.S. forces from anticipated chemical, biological, and toxic industrial material threats.

The task of the JSGPM acquisition team was to develop, prepare, and award a clearly defined performance-based benchmark RFP, embracing the total life-cycle acquisition management concept by partnering with a contractor from research and development, through production, fielding, and sustainment throughout its service life. The Joint Service team broke from the traditional acquisition and procurement approaches with this innovative total systems responsibility approach while accomplishing these efforts within the time and budget constraints of the program requirements. This long-range contracting strategy and schedule compression was accomplished proposing award of a single contract that covers multiple phases of the acquisition process through contract options.

Some of the acquisition activities being recognized was an extensive market survey examining the features and technologies of masks worldwide, incorporating the beneficial ones into the specification and identifying high-risk areas. The performance specification identifies essential performance parameters that focus on meeting the warfighters needs with revolutionary improvements while managing risks. A unique

and innovative modeling and simulation test fixture was developed allowing more realistic form, fit, and function of the general purpose mask to be evaluated using live agents ensuring maximum real-world protection for the joint services.

The RFP specifies development as an open system architecture to maximize the use of commercial practices, standards, and technologies whenever possible. Efforts to partner with industry included issuing a draft RFP for industry comments. In conjunction with the draft RFP, a pre-solicitation conference was held where DOD users, developers, testers, and program management personnel were available to brief industry and answer questions. Also industry was given time to present information on their capabilities in an open forum as well as one on one with the government to promote teaming. In addition, a reading room was available to potential contractors for access to technical data and program information on mask design, materials, and testing thereby increasing competition and reducing risks due to knowledge gaps. Integrated contractor and Department of Defense testing is planned to reduce time and costs, as well as take full advantage of the commercial facilities available.

Total life cycle responsibilities were a significant consideration in development of the acquisition strategy and ultimately for source selection. The strategy requires offerors' to take responsibility not only in the early phases of research and development, but throughout the life cycle. The program targeted the lowest possible life-cycle costs and a joint services logistics system. Evaluation criterion for source selection was conducted using the trade off process to obtain the best value. Award will be based on an offeror's ability to successfully meet the performance requirements and incorporate cost as an independent variable and total ownership costs throughout the life cycle of the program.

Automated acquisition information was employed by the paperless solicitation. The draft RFP and all revisions; the final RFP with all amendments; and all questions, inquiries, and responses were handled through the AMC Acquisition Center web site. The contractor will maintain commercial drawings and manuals and all technical data as a result of the contract will have DOD access (through an electronic Shared Data Environment). The team also uses the electronic purchase request and the government VISA Card to purchase essential items.

A chartered Joint Service (JSIPT) was established. The primary purpose of the JSIPT is to manage the complete scope of the program, resources, and risk. The RFP requires full incorporation of the contractor personnel into the IPT. The contractor is a full partner with the DOD Team.

The AMC Acquisition Reform Improvement Assessment Team provided vital assistance in reviewing the draft and final RFP and many favorable comments were received for incorporating acquisition reform initiatives and good RFP streamlining practices.

POC: Mr. Richard W. Decker II, Commercial (410) 436-6024, DSN 584-6024, or email rwdecker@sbccom.apgea.army.mil

PEOPLE IN THE NEWS

Mr. Greg Mercado and his family visited Edgewood on December 23rd to discuss careers in chemistry with Dr. Bill White, Edgewood CB Center. This visit was arranged as a continuation of the ceremony in Crystal City, VA, honoring Boy Scouts in the Washington area attaining the rank of Eagle Scout during the last year. Dr. White discussed the opportunities, prerequisites, rewards, and metrics in academia, industry, government, and small business. Greg hopes to receive an appointment to the U.S. Military Academy and major in chemistry.

Dr. Frederic J. Berg, Edgewood CB Center, Jeanine P. Chapdelaine, Natick Soldier Center, are 2 of the 10 winners of the **Ten Outstanding AMC Personnel of the Year** for 1998. In appreciation of their accomplishments and highly creditable service, General Coburn, AMC Commander, sent them a personal congratulations and awarded an AMC engraved plaque to be presented on his behalf.

SECRETARY OF THE ARMY PUBLIC SERVICE AWARD

The Soldier Systems Team (SST), IMMC, has been working closely with the Pentagon and the Defense Supply Center, Philadelphia, to introduce the Secretary of the Army Public Service Award into the supply system and finalize the first shipment of the medal to the Pentagon. In July 1998, The Institute of Heraldry notified SST that the award was designed and approved. SST prepared the Supply Request Package and submitted initial requirements of 1500 medals to DSCP in August 98. The medal is awarded by the Secretary of the Army to private citizens and spouses of military members who have provided exceptional public service to the Army. Change 1 to AR 672-20 was published in January 1999 to include the award criteria. The first shipment of medals was due September 1999; however, the MILSPEC was changed and a miniature medal was added to the set. This delayed the first shipment of medals. SST has received numerous government inquiries regarding the status of this item. Five complete medal sets were federal expressed to the Secretary of the Army office in Washington DC for delivery by January 28th . SSTwill coordinate with the Pentagon to establish supply controls and will work closely with DSCP to assure future deliveries are timely.

AMC AUDITOR OF THE YEAR

On February 1st, COL Robert Spidel, Commander, U.S. Army Garrison, Aberdeen Proving Ground, presented an AMC plaque to Ms. Marian Hodge of the Garrison's Internal Review and Audit Compliance Office as a runner-up for the AMC Auditor of the Year for 1999. The plaque was inscribed "For Significant Contributions to the AMC Internal Review – 1999". Ms. Hodge was also a runner-up in 1996 and was the AMC Auditor of the Year in 1994.

ARMY MATERIEL COMMAND COMMANDER'S SECURITY FORCE AWARD

A review of Major Subordinate Command submissions for the Army Materiel Commander's Security Force Award has been completed. The winner of the AMC Commander's Security Force Award for FY99 is Pine Bluff Arsenal, Pine Bluff, AR. Pine Bluff Arsenal was notified on February 14th that they were the winners of the award.

NCMA BLANCHE WITTE MEMORIAL FOUNDATION AWARD

Ms. Diane Schneider, a Procurement Analyst in the Business Management Division of the AMC Acquisition Center, received an "honorable mention" from National Contract Management Association's Blanche Witte Memorial Foundation Award Committee. Ms. Schneider was recognized for outstanding service in the field of contract management.

PM-SOLDIER'S FIRST TIER AWARD WINNERS

Two members of the Edgewood CB Center's Detection/Decon Core Team, Margaret Freeman and Randy Bagrowski, were selected from a list of nominees in 14 different categories as the PM-Soldier's **First Tier Award Winners**. Margaret Freeman was selected for the General Schedule Support Award and Randy Bagrowski for the Technical Staff Support Award, for their contributions in programmatics, contracting, and testing support to the Riot Control Agent Neutralizer, Soldier Enhancement Program. They were nominated by Mr. Barry Hauck, PM-Enhanced Soldier Systems.

WISE AWARD FOR ENGINEERING ACHIEVEMENT

Ms. Cynthia (Cindy) Swim of the Edgewood Center's Research and Technology Directorate has been selected for a 2000 Woman in Science and Engineering (WISE) Award for Engineering Achievement. Ms. Swim has been responsible for laser/lidar development and its applications to standoff chemical and biological agent sensing. She has continuously been developing and applying new and improved equipment and techniques for the detection of biological and chemical agents and advancing the state of the art of lasers and lidars. The Award will be presented to Ms. Swim at the 19th Annual WISE National Training and Development Program, Palm Harbor, FL, in April. A total of 12 nominations were received for subject awards. Five of the nominations were for the Scientific Achievement category, while the other seven were for the Engineering Achievement category. A panel of subject matter experts met to review/rank the nominations. All nominees were outstanding and each will receive a congratulatory memorandum from Dr. Clarence Kitchens, Functional Chief Representative for Engineers and Scientists

MANAGEMENT MOVES WITHIN THE EDGEWOOD CB CENTER

In Issue No. 14 of our Quarterly (April 1998), we welcomed Dr. Gary I. Resnick as our newest leader and profiled his career within the CB community. We now say goodbye as Dr. Resnick moves on to lead the Defense Reduction Threat Agency's CB Directorate. To fill Dr. Resnick's position as the Director of Edgewood CB Center's Research and Technology Directorate, we have begun the recruitment process. We anticipate this process will take approximately 1 year. As an interim, Mr. Joseph Zarzycki, the Center's Technical Director, announced that Dr. Raymond (Ray) Mackay has agreed to rejoin us on an interim basis under an intergovernmental personnel agreement. Dr. Mackay comes to us from Clarkson University where he is the Director of the Materials Chemistry Department. Dr. Zarzycki said he uses the term "rejoin" us because Dr. Mackay formerly worked at Edgewood in the CRDEC organization. Dr. Mackay is expected to report on July 10th, 2000. To bridge the gap until that date, Dr. James (Jim) Savage, currently the Director of Edgewood CB Center's Advanced Systems Concepts Directorate, has agreed to serve as the Director of Research & Technology. Dr. Savage will also replace Dr. Resnick as the Army representative to the Joint Service Tech Panel on CB Defense. Dr. Savage's assignment to both positions is effective March 26th.

BALTIMORE FEDERAL EXECUTIVE BOARD EXCELLENCE IN FEDERAL CAREER AWARDS

Our Technical Director recently announced the following Edgewood CB Center people would be recognized at the Awards Luncheon on May 5th:

GOLD/SILVER AWARD FINALISTS:

Ms. K. Carol Baker, Category VI, Equal Employment Opportunity Service
Mr. R. Andrew Blankenbiller, Outstanding Professional - Technical, Scientific and Program Support
Ms. Deanna S. Gross, Outstanding Professional (Non-Supervisory)
Mr. William R. Loerop, Category IA, Outstanding Supervisor (Grades 13 and Above)

OPERATING CONTRACTOR SELECTED FOR SAFETY AWARD

Mason & Hanger Corp., the Operating Contractor at Newport Chemical Depot (NECD), has been selected as this year's nominee for the Day & Zimmermann Annual Safety Award by the President of Day & Zimmermann Mason & Hanger Group. Day & Zimmerman has a very aggressive safety program and safety is known as their number one core value. For this nomination to occur, Mason & Hanger at NECD competed with Lone Star Army Ammunition Plant (AAP), Kansas AAP, Hawthorne Army Depot, Iowa AAP, Milan AAP, Mississippi AAP, and Pantex. Mason & Hanger at NECD will now compete with finalists chosen from the H.L. Yoh Group; Day & Zimmermann International, Inc.; Day & Zimmermann LLC; and NPS Energy Services. This is analogous to an AMC installation being selected for an AMC-wide safety award and then competing with finalists from all other Army commands for the top Army award. We believe this accomplishment brings great credit to both the Government and Mason & Hanger Staff working together to make Newport Chemical Depot a safe place to work.

KIDS AND CHEMISTRY

At Edgewood, we are starting a "Kids and Chemistry" Volunteer Group. This "Kids and Chemistry" program is an outreach program that partners scientists and engineers with students in local schools.

The purpose of the partnership is to give students a better appreciation for science and scientists while helping them to understand some of the ways that chemistry impacts their everyday lives. The volunteers serve as role models and mentors while performing hands-on activities with the children.

We are looking for scientists, engineers, and technicians (military, government or contractor) to volunteer a few hours of their time to make the program a success. We need:

Team Captains: If you comfortable leading a chemistry lesson for a group of 25 5th graders (10-11 year olds), this is the job for you!

Team Members: You would assist the 5th graders in the hands-on activities that the Team Captain is leading. If you want to participate but don't want to lead the lesson, this is the job for you!

This program is affiliated with the American Chemical Society (ACS), and an ACS chemist will provide "free" training on post in early February to all volunteers.

POC: Ms. Suzanne Procell, Commercial (410) 436-4604, DSN 584-4604, or email saprocel@sbccom.apgea.army.mil

SCIENCE AND ENGINEERING APPRENTICE PROGRAM

The Edgewood Chemical Biological Center will again be participating in the Science and Engineering Apprentice Program (SEAP) from June 19th to August 11th. The program is designed for high school students who are interested in science and engineering career fields. As it has been during the past 18 years, the Edgewood CB Center will assign selected students to work as an apprentice to a scientist or engineer for the 8-week time frame.

For more information on the program and application information, log on to http://WRAIR-www.army.mil, and select News and Events.

Upcoming Conferences		
Date and Place	*Title*	*POC*
13-16 March 2000 *Fayettsville, NC*	*2nd Annual* *Special Forces Expo*	*Ms. Joann Brucksch* *(410) 436-5383* *Edgewood Area* *email: jjbrucks@apgea.army.mil* *or* *Mr. Mike Duff* *(508) 233-5559* *Natick Area* *email: mduff@natick-emh2.army.mil*
3-6 April 2000 *Crystal City, VA*	*DOD Medical Initiatives* *Conference and Exhibition*	*Ms. Joann Brucksch* *(410) 436-5383* *Edgewood Area* *email: jjbrucks@apgea.army.mil* *or* *Mr. Dave Cheney* *(508) 233-4307* *Natick Area* *email: dcheney@natick-emh2.army.mil*
17-18 May 2000 *Tampa, FL*	*SOF 2000 Week* *and APBI Conference*	*Ms. Joann Brucksch* *(410) 436-5383* *Edgewood Area* *email: jjbrucks@apgea.army.mil* *or* *Mr. Dave Cheney* *(508) 233-4307* *Natick Area* *email: dcheney@natick-emh2.army.mil*

Upcoming Conferences		
Date and Place	*Title*	*POC*
20-25 May 2000 *Fort Knox, KY*	*2000 Armor Conference*	*Ms. Joann Brucksch* *(410) 436-5383* *Edgewood Area* *email: jjbrucks@apgea.army.mil* *or* *Dr. Dave Cheney* *(508) 233-4307* *Natick Area* *email: dcheney@natick-emh2.army.mil*
11-15 June 2000 *Colorado Springs, CO*	*Technology Partnership for Emergency Management Workshop and Exhibition 2000*	*Ms. Brenda Eckstein* *(410) 436-2879* *email: bceckste@apgea.army.mil*
12-15 June 2000 *Fort Benning, GA*	*2000 Infantry Conference*	*Ms. Joann Brucksch* *(410) 436-5383* *Edgewood Area* *email: jjbrucks@apgea.army.mil* *or* *David Emond* *(508) 233-5865* *email: demond@natick-emh2.army.mil*
15-23 June 2000 *Fort Leonard Wood, MO*	*Annual Worldwide Chemical Conference*	*Ms. Joann Brucksch* *(410) 436-5383* *Edgewood Area* *email: jjbrucks@apgea.army.mil*
19-23 June 2000 *Paris, France*	*EUROSATORY 2000*	*Ms. Brenda Eckstein* *(410) 436-2879* *email: bceckste@apgea.army.mil*

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Our 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 November:

LTC Mukai and Mr. Clifford Wendel, SBCCOM, served as subject matter experts at the **1999 CSEPP Medical Conference.** LTC Mukai also represented SBCCOM on the conference planning committee. The conference consisted of four workshop groups that brought together medical planners and personnel from state and local health departments, emergency management agencies, and other medically related entities involved in the CSEPP. Through facilitated sessions, common problems, and issues were discussed and solutions explored in an attempt to improve CSEPP medical preparedness. A record of the proceedings will be made available to the conference participants for their future use in CSEPP medical planning.

Natick Soldier Center participated in a **Nonlinear Absorbing Dyes for Optical Limiting Applications Workshop** to assess the current status of agile laser eye protection research in the United States and the United Kingdom to recommend effective research approaches. Workshop participants (from government and academia) evaluated nonlinear material properties and synthesis capabilities as well as eye/sensor protective device design. The use of NLO materials offers the most promise.

In December:

The CGs, USAIC and SBCCOM hosted the annual **Soldier Systems Review** for the CGs, TRADOC and AMC at the Natick Soldier Center. More than 25 General Officer and SES attendees heard Army combat and materiel developers and Marine Corps, SOF and DARPA representatives provide updates on key soldier systems programs. Briefings included the status of the Capstone Requirements Document and funding visibility strategy for Soldier Systems, funding support for Land Warrior and soldier and soldier support modernization, and Land Warrior participation in the JCF AWE. The CGs of TRADOC and AMC will advise the CSA of their findings regarding soldier systems modernization in a joint memorandum.

Nancy Waltman and Dean Hansen attended the **National Institute of Packaging, Handling and Logistics Engineers (NIPHLE) Symposium.** This year's symposium was held in conjunction with Michigan State University School of Packaging and included a University Tour. The presentations provided a common ground for the exchange of information in all areas of packaging and handling. Experts in Packaging, Handling, and Logistics shared technical developments and the latest products and services. An array of vendors displayed products and materials. Discussion topics included New Shock and Vibration Philosophy, VCI Corrosion Control, Strategic Logistics, and Effects of Compressive Creep on Performance Properties of Closed Cell Packaging Materials. Additionally, two panel discussions were held. The first being, Packaging Education. This included doctors from Michigan State, Rochester Institute, USA TACOM TARDEC, and the University of Wisconsin-Stout. The second discussion was the DoD Single Process Initiative and was presented by members of the Defense Packaging Policy Group. This symposium

was an excellent networking tool, promoting all segments of packaging and handling, and providing a close integration of these disciplines.

Natick Soldier Center representatives participated in the **fourth annual Joint Services Pollution Prevention and Hazardous Waste Management Conference and Exhibition**. This conference attracts global representation. The SBCCOM exhibit included NSC efforts in textiles, composites, ceramics, rigid wall shelters and food packaging. NSC projects were also represented at a second exhibit sponsored by the Army Pollution Prevention Technology Team.

Natick Soldier Center gave invited presentations at the interagency **Conference on Reducing Foodborne Illness: Advancing the Adoption of Technologies** sponsored by the Riley Memorial Foundation. ECBC, universities and industry also presented several posters. The sessions illustrated the key role the NSC DoD Combat Feeding Program has in catalyzing implementation of leading-edge food safety/processing technologies. It is proposed to have follow-on meetings involving SBCCOM, VETCOM, USDA and FDA to help move joint food safety research forward.

In January:

A joint meeting of the **Joint Committee on Tactical Shelters and Shelter Industry Technical Working Group and shelter industry members of the American Society for Testing and Materials (ASTM) subcommittee E06.53** was held to discuss current programs and technology efforts. In addition to rigid and soft shelter programs, related topics such as mobilizers, container handling units, and shelter certification were briefed and discussed. With over 60 attendees, the meeting provided an excellent dialog between Government and Industry.

Members of the Natick Soldier Center, PM-Soldier Support, and IMMC airdrop teams devoted a day to an exchange of technical information on ongoing and planned programs. The conference allowed engineers, technical support staff and managers to update their understanding of the state-of-the-art technology and planned program objectives, as well as to interchange ideas on technical challenges being faced.

Natick Soldier Center attended the **National Fire Protection Association's (NFPA)** Hazardous Materials Protective Clothing and Equipment and Fire and Emergency Services Protective Clothing and Equipment Technical Committee meeting. The fire and emergency service community looks to NFPA for development of codes and standards. SBCCOM membership on this committee has been approved by the NFPA Standards Council. Natick Soldier Center representative is now a full voting member of this committee. Edgewood CB Center representatives participated as technical experts. The primary purpose of this meeting was further refinement of a proposed NFPA Standard entitled Protective Ensembles for Chemical and Biological Terrorism Incidents. This new standard is targeted to fire and emergency services personnel exposed to victims and threat agents during assessment, extrication, rescue, triage, and treatment operations at, or involving chemical and biological terrorism incidents. This document is expected to set the standard for the design, performance, testing, documentation, and certification of protective ensembles for first responders responding to chemical and biological terrorism incidents. This latest revised version was based on the CW IRP "Guidelines for Incident Commander's Use of Firefighter Protective Ensemble with Self Contained Breathing Apparatus for Rescue During a Terrorist Chemical Agent Incident."

The Joint Service General Purpose Mask Team supported the **Reserve Officer Association Millennium** in Washington, DC.

In February:

SBCCOM presented an Installation Force Protection Officers Workshop at the **2000 AMC Force Protection Conference** held at Redstone Arsenal. The workshop consisted of an overview of the NBC Installation Protection Program and the Pope/Bragg IP Pilot; a presentation on Force Protection Officers WMD planning requirements, including examples of prepared planning documents; and a 5-hour WMD training session for "Installation Force Protection Officers." The training session included information on the WMD threat; implications that a WMD incident would have on an installation and its surrounding communities; developing an integrated response to a WMD incident; and legal and financial considerations for WMD incidents. The full-day session was extremely well received by the AMC Force Protection community. SBCCOM has been asked to support AMC's Installation Vulnerability Assessment program.

Mr. Paul Rambo and Mr. Kevin Joubert attended the **Society of Logistical Engineers Meeting** for a "Total Ownership Cost Reduction" Tutorial held at the New Jersey Chapter's location (Ft. Monmouth). Keynote speakers were Mr. Bernard Price from the Pentagon (Chief, DCSOPS - Analysis Division) and Dr. Vincent Dinicola (DCSOPS). Topics provided by over 11 speakers included presentations on planning, analyzing for and the execution of a TOCR effort along with numerous examples conducted by U.S. Army CECOM.

Natick Soldier Center participated in project meetings of the **ITT-FDA National Center for Food Safety and Technology** (NCFST). NSC and FDA researchers discussed goals for the second phase of a joint project with Ohio State University on Pulsed Electric Field processing. The final steps needed for initiating the Dual Use Science and Technology (DUST) project on High pressure Processing with Flow International and NCFST were settled. The next step is for the four industrial partners, Kraft, ConAgra, Unilever, and Procter & Gamble, to sign a partnership agreement.

The Developmental Test Center, SBCCOM, and PM Chemical Demilitarization jointly hosted the **PEO/DAS/PM Conference** at Aberdeen Proving Ground, MD. The theme is Army Acquisition Test and Evaluation. There was a small area devoted to local exhibits.

This year's **Special Operations/Low Intensity Conflict Conference**, held in Crystal City, VA, focused on the "Technological and Operational Reality for Conflict in the New Millennium." SBCCOM had a rather large exhibit at this event.

The Army Materiel Command (AMC) had the lead for the **Winter AUSA**, held for the first time in Fort Lauderdale, FL, The theme was "Army & Industry: Partners in Military Readiness." As in years past, SBCCOM participated in AMC's Corporate Exhibit.

In March:

Mr. Joseph Zarzycki, Director of the SBCCOM Research, Development, and Engineering Center, was invited by Mr. Robert W. Whalin, Director of the U.S. Army Research Laboratory, to be his guest at the **4th Annual Federated Laboratory Symposium**.

A paper, entitled ***"Fog Oil Vehicle Engine Exhaust Smoke System (VEESS) for M1 Abrams Main Battle Tank,"*** was accepted for the poster display session at the **Symposium on Ground Vehicle Survivability** to be held at the Naval Postgraduate School in Monterey, CA.

A paper entitled ***"Meeting National Environmental Policy Act (NEPA) Requirements for Classified Actions,"*** by Teresa Mann was selected to be presented at NDIA's **26th Environmental Symposium and Exhibition**. The paper explains how and why the NEPA process must be followed for classified federal actions and offers guidance

for preparing, staffing, and approving NEPA documents so the spirit and intent of NEPA can be met for classified programs.

The BW IRP team was approached by the NBC staff officer organizing the **MEDIC-WMD 2000 Conference** about being an exhibitor at this conference. Our purpose would be to highlight the IRP work and make information available to the medical responder community. The conference is hosted by The Office of the Surgeon General and its purpose is to provide a forum for federal, state, and local decision-makers, as well as industry representatives, who are developing the medical response strategies for WMD events.

In April:

Ms. Cynthia Swim, Edgewood CB Center's Laser Standoff Detection Team, was invited to make a presentation entitled, "Overview of Chemical Biological Detection Systems," at the **2000 Military Sensing Symposia (formerly Infrared Information Symposia, IRIS)** Specialty Group on Active Electro-Optics Systems at the Air Force Institute of Technology, Wright-Patterson AFB, OH.

Upcoming Symposium

Dr. Harry Salem, Research and Technology Directorate Chief Scientist for Life Sciences, has been invited to participate in the **National Toxicology Program's Advisory Committee on Alternative Toxicological Methods (ACATM)**. The ACATM provides advice on the activities and priorities of the Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM) and the National Toxicology Program Center for the Evaluation of Alternative Toxicological Methods (NICEATM). Dr. Salem is the Department of Defense representative to the ICCVAM.

The next **CB APBI** is scheduled for 12-14 September 2000. It will include a two-day APBI followed by an **IR&D Conference** and will be held at Edgewood.

Upcoming Conferences (continued)

Date and Place	*Title*	*POC*
19-21 September 2000 *Edgewood Area, APG, MD*	*CB Mission Area APBI and IR&D Conference*	*Mr. Ronald P. Hinkle* *(410) 436-2031* *email:rphinkle@apgea.army.mil*
19-21 September 2000 *Quantico, VA*	*Modern Day Marine Military Expo*	*Ms. Joann Brucksch* *(410) 436-5383* *Edgewood Area* *email: jjbrucks@apgea.army.mil* *or* *Mr. Davod Emond* *(508) 233-5865* *Natick Area* *email: demond@natick-emh2.army.mil*

Books, Journals, and Magazine Articles

"Quantitative Analysis of Sulfur Dioxide with Passive Fourier Transform Infrared Remote Sensing Interferogram Data" has been accepted for publication in the *Journal of Applied Spectroscopy*. The authors of this publication are M.J. Mattu of Instrumentation Metrics; G.W. Small of Ohio University; and R.J. Combs, R.B. Knapp and R.T. Kroutil of the Edgewood CB Center. The article describes the use of statistical multivariate models for direct analysis of raw interferograms from a passive FTIR spectrometer configuration. Generation of raw interferogram data with the passive FTIR spectrometer viewing the contents of a heated flow-through gas cell against a cold low-angle sky background allows simulation of emission from an industrial stack.

"Calibration Transfer Algorithm for Automated Qualitative Analysis by Passive FTIR Spectrometry" by F. W. Koehler, Sandia National Laboratories; G. W. Small, Ohio University; and R. J. Combs, R. B. Knapp, and R. T. Kroutil, Edgewood CB Center, has been accepted for publication in the **American Chemical Society** *J. Anal. Chem.*

"Artificial Neural Networks for the Automated Detection of Trichloroethylene (TCE) by Passive Fourier Transform Infrared Spectrometry" by C. L. Hammer, Clorox Services Co.; G. W. Small, Ohio University; and R. J. Combs, R. B. Knapp, and R. T. Kroutil, Edgewood CB Center, has been accepted for publication in the **American Chemical Society** *J. Anal. Chem.*

The Chemical Weapons Improved Response Program (CW IRP), in partnership with the Downers Grove, IL, Fire Department, has begun writing a series of articles on the CW IRP Incident Command, Positive Pressure Ventilation, and Mass Casualties Decontamination studies. These articles will be published in firefighter trade publications and are expected to expose 90% of the country's firefighters to the CW IRP results.

Products and solutions derived through our BW Improved Response Program were noted and described in the January issue of **Health Facilities Management**. The article, written by Dr. Henry Siegelson of Emory University's Department of Emergency Medicine, describes emergency measures for local hospitals responding to chemical or biological terrorism.

The BW Improved Response Program is featured in the Jan/Feb 00 issue of **Army RD&A Magazine**. The article, titled *Helping the Civilian Community - The Biological Weapons Improved Response Program*, describes the program's intent, analytical process, products and future plans. Beginning next year, the overall Improved Response Program will assume a much larger Department of Defense role. This article introduces the program to the overall Army research community.

The March 10th issue of the newsletter, **Sensor Technology, Technical Insights**, features an article by D. Johnson and B. Toner on a new sensor designed by Arthur Carrieri of SBCCOM. Mr Carrieri's thermal

luminescence sensor was designed to detect liquids on surfaces in situ and at a distance, and works by identifying the infrared emission signal of the contaminant's interstitial layers. A patent disclosure has been prepared for the technology and will be submitted this month. Uses in EPA cleanup and compliance, surveying land areas around chemical plants and utilities, and inspecting agricultural land for pesticides and other hazardous chemical are envisioned.

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.

Report No.	*Title*	*Author(s)*
ECBC-CR-007	Generation and Monitoring of a Well Characterized Plume for the Evaluation of Remote Sensing Instrumentation, December 1999, UNCLASSIFIED - limited.	C.T. Chaffin T.L. Marshall N.C. Chaffin
ECBC-TR-035	Effect of Temperature on the Desorption and Decomposition of GB on Activated Carbon, December 1999, UNCLASSIFIED - public release.	C.J. Karwacki J.H. Buchanan T.E. Rosso L.C. Buettner J.J. Mahle G.W. Wagner
ECBC-TR-038	Chemical Weapons Convention Verification Technology Research and Development, Sample Preparation Methodology for Air Samples, December 1999, UNCLASSIFIED - limited.	T. Rosso N. Turner
ECBC-TR-060	Title: Filter Immobilization Studies, Part 1. Polymer Screening, October 1999, UNCLASSIFIED - limited.	J.J. Mahle G. Palmese Saeed Ziaee
ECBC-TR-069	Use of Fourier Transform Infrared Spectrometry in the Detection of Bacteria, December 1999, UNCLASSIFIED - public release.	J.M. Lochner A.P. Samuels D.A. Paterno
ECBC-TR-071	Reaction of N-Ethyl-(HN-1), N-Methyl-bis(2-chloroethyl)amine (HN-2), and Tris(2-chloroethyl)amine (HN-3) with Peroxides, February 2000, UNCLASSIFIED - public release.	F-L. Hsu F.J. Berg L.R. McMahon

ECBC-TR-074	Evaluation of Airborne Exposure Limits for VX: Worker and General Population Exposure Criteria, February 2000, UNCLASSIFIED - public release.	S.A. Reutter R.J. Mioduszewski S.A. Thomson
ECBC-TR-473	Verification for the Detection Limit of VX Analysis on New and Future Analytical Mass Spectrometry Systems, December 1998, UNCLASSIFIED - public release.	M.W. Ellzy
ECBC-TR-499	Class II Precision and Accuracy Study of the Analysis of VX in the Alternative Technology and Approaches Program's VX/Caustic Neutralization Product Using a Gas Chomatography/Ion Trap Spectrometer, December 1998, UNCLASSIFIED - public release.	M.W. Ellzy
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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 Center (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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