



MEMORANDUM OF AGREEMENT SIGNING CEREMONY

The U.S. Army Materiel Command's (AMC) Program, known as the Contractor Performance Certification Program (CP)² 2000, is a voluntary program for recognition of suppliers of goods and services who have demonstrated outstanding quality practices. The (CP)² 2000 Program is conducted free of charge for those contractors currently performing or planning on performing work for the U.S. Army. Customer satisfaction, commitment to continuous improvement and the good business practices outlined by the ISO 9000 Series of quality standards are cornerstones of (CP)² 2000. Any contractor who does business with AMC or one of AMC's Major Subordinate Commands or any contractor who anticipates such business is welcome to become part of the program.

John C. Doesburg, Commanding General of the U.S. Army Soldier and Biological Chemical Command, and Mr. James Bacon, the Program Manager for Chemical Demilitarization, met with Mr. James E. McCarthy, Senior Vice President of Parsons' Government Division, to sign a Memorandum of Agreement (MOA). This MOA reaffirms AMC's commitment to recognizing contractors that have successfully completed the meticulous (CP)² certification process.

The (CP)² 2000 is truly a win-win program for contractors and the Government. We are partners in our journey to quality excellence.

The AMC program expectations of (CP)² 2000 go well beyond the ISO 9000 models with the addition of advanced quality principles and practices. It is an AMC assessment tool recognizing contractors committed to total quality, customer satisfaction, and continuous improvement in all their processes.

Regardless of the industry or product, the real purpose of any quality management system or certification effort is to assure that customer demands are met and that products and services meet or exceed customer requirements. In the case of the U.S. Army's suppliers, the quality of the products and services is critical because it could mean the lives of America's sons and daughters serving in the U.S. Armed Forces. The (CP)² program provides a tool for both the government and suppliers to work together in partnership to assure that the soldiers are provided the highest quality products on time and at the most reasonable cost to the taxpayer.



MG Doesburg, Mr. Bacon, and Mr. McCarthy sign MOA.



Honored guests were Mr. Michael A. Parker, Deputy to the Commander, and Mr. Dwight Hunt, Vice President, Chemical Demilitarization Section

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QUALITY EVALUATION LABORATORY RE-ACCREDITED

In May, the American Association for Laboratory Accreditation reaccredited the Edgewood CB Center's *Quality Evaluation Laboratory*. The laboratory met the requirements of ISO Guide 25-1990 (General Requirements for the Competence of Calibration and Testing Laboratories) in the field of Mechanical Testing and Nondestructive Testing. This accreditation is equivalent to the relevant requirements of the ISO 9000 series of standards.

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

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BEAMING FOOD

Natick hopes irradiation gains consumer acceptance

by Jane Benson

Vicki Loveridge has no beef with the February 22nd decision by the U.S. Department of Agriculture to extend its approved list of irradiated foods to include raw red meats.

"This food process has been studied more than any other food process in history," said Loveridge, a senior food technologist at the Department of Defense Combat Feeding Program at the U.S. Army's Soldier Biological Chemical Command.

During irradiation, foods are placed in a machine that exposes them to electron beams or cobalt gamma rays. The process kills bacteria by briefly altering the electric charge of the molecules in the food and microorganisms. Foods processed by irradiation are safer to eat and have a longer shelf life. They also are more nutritious and better tasting than foods processed with other methods used to rid them of insects or bacteria, she said.

Irradiation is particularly effective in killing bacteria like salmonella or E. coli that cause food-borne illness.

Loveridge said that according to the Center for Disease Control, between 5,000-9,000 Americans die and 33 million Americans become ill each year from food-borne illness.

"It provides a safe, premium product," Loveridge said. "Just think of the impact on public health and well being, not to mention short and long-term healthcare and worker productivity."

She is not alone in her opinion. In fact, the American Medical Association, World Health Organization, Mayo Clinic, U.S. Food and Drug Administration, and U.S. Public Health Service all agree with her. The process seems especially suited to the problems associated with raw beef.

"Eighty-nine percent of U.S. ground beef contains E.coli," said Loveridge. "You can't taste it. You can't smell it."

Loveridge explained that during irradiation the charges of the electrons in bacteria are altered, but only briefly. A product can only become radioactive-some people's fear-if the nucleus were affected.

"There just isn't enough energy available in the process to make food radioactive," Loveridge said.

However, meat packagers and producers remain hesitant.

"There are very few food irradiation facilities in existence, so getting the meat to a place where it can be irradiated poses a challenge," said Loveridge.

The industry also is concerned that public misconceptions may cause consumers to reject the product. Many Americans are curious about the process, but are not sure what it is or why it might be used.



After 5 weeks, these irradiated green peppers are slightly wrinkled, but they still look and taste relatively fresh.

“Ninety years ago people had similar fears about pasteurization,” Loveridge said. “Irradiation does not affect mineral, fat, carbohydrate or protein content. There is reduction of some vitamins, but that’s true of freezing, heat pasteurization and canning, too.”

Loveridge continued that many people are not aware that canning actually alters food much more than irradiation. Canning causes vast chemical and physical changes in food.

Consumers also may not be aware that the irradiation process is already used on a myriad of consumer and medical products, in addition to several foods. These products include contact lens solution, eye shadow, liquid detergents, earrings, potpourri, bandages, blood serum, hypodermic needles and scalpel blades.

International humanitarian groups are interested in food irradiation because it could help address distribution problems. The process may reduce the amount of food lost to insects, mold and other types of spoilage, and increase food reserve supplies.

Irradiated foods also would be a healthful addition to combat rations called Meals, Ready to Eat (MREs).

Loveridge said that the inclusion of shelf-stable irradiated foods in warfighter rations would increase the variety of familiar foods, and improve texture and taste.

Irradiated products could benefit military logistics because they include less water than canned foods, reducing their weight.

Natick researchers are interested in educating the military population on currently-approved irradiated foods so that someday the irradiated shelf-stable foods will be FDA-approved for general use and offered in products such as the MRE.

The process has already been approved for numerous types of food, including poultry, pork, fruits, vegetables and spices. She said irradiation is actually safer than chemical alternatives, which have been traditionally used to treat produce and spices. Many of these chemical treatments are now being outlawed because they cause ozone depletion.

Natick already has a long history of producing irradiated foods for the space program. Natick pioneered irradiation in the 1960s as a method of food preservation and had its own irradiation equipment until the early 1980s. Today, foods are produced here and then irradiated at a facility run by Food Technology Service, Inc., with whom Natick has a Cooperative Research and Development Agreement.

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HooAH

Nutritious energy bar delivers soldiers a battlefield boost

by Curt Biberdon

The word “hooah” has many uses and meanings in the Army, but there’s only one HooAH!

HooAH! is a nutrient-dense food bar intended to increase energy and improve performance of soldiers during intense military operations.

“The military is looking at it for troops in high-stress conflicts where they expend a lot of energy,” said Betty Davis, team leader for Performance Enhancement and Food Safety at the Department of Defense Combat Feeding Program in Natick, MA.

HooAH! bars were invented in 1996 through a cooperative research and development agreement with M&M Mars, Inc.

HooAH! bars fall under the Performance Enhancing Ration Components project, which has the goal of demonstrating that certain natural food ingredients can heighten mental and physical performance and incorporating those ingredients into high-quality ration foods.

“Very key in this is lipids,” he said. “They give it

shelf life, texture, taste and energy. Our studies have shown the HooAH! bar to be superior to anything commercial as far as acceptability.”

Main ingredients in the HooAH! bar are corn syrup and rice crisp blended with corn for texture and carbohydrates. Cottonseed or soybean oil are used for fat. The military operational requirement for ration storage of three years at 80 degrees or six months at 100 degrees presents a challenge not faced by other nutrition bars. It’s another practical reason for a higher fat content.

“All your commercial bars become hard as a rock over time,” Briggs said. The current formulation has an ideal amount of fat to provide a stable, palatable food that has a firm but crunchy texture.

HooAH! bars have undergone extensive consumer taste-testing. After all, food scientists at the Combat Feeding Program often say that developing a superior ration means nothing if people won’t eat it.

HooAH! bars in ration menus were tested in 1996 by Marines at the Mountain Warfare Training Center, Calif. They were highly accepted and



HooAH! bar flavors are apple-cinnamon, chocolate, cran-raspberry, peanut butter, and raspberry.

desired for use in future rations. Fort Campbell, Ky., soldiers also sampled chocolate HooAH! bars and rated them higher than a commercial performance bar.

Another field test in 1997 at Fort Picket, VA, revealed the four HooAH! flavors were significantly more acceptable than the commercial products they were compared against.

Soldiers like the bars, but the timeframe for when they might be consistently available to units remains unclear, Davis said. One possible method of providing HooAH!, which is a trademarked and licensed product, to soldiers would be to sell them in stores. Sterling Foods, Inc. in San Antonio, TX, is now attempting to license the registered HooAH! with the military for the right to sell it commercially, according to Briggs.

HooAH! bars also are a suitable food for delivering specific ingredients for a particular purpose.

The bar has been tested with antioxidants (prevent or reduce muscle damage), caffeine (stimulant), glutamine (amino acid), tyrosine (amino acid) and creatine (muscle-building organic acid).

With these ingredients, DoD Combat Feeding Program food scientists and U.S. Army Research Institute of Environmental Medicine research physiologists have worked together to formulate and test the effectiveness of performance-enhancing HooAH! bars.

One study showed that creatine added to the HooAH! bar consumed by Special Operations troops increased their ability to sustain physical activity.

“HooAH!, when optimized with nutritional additives, can optimize the effects of the warfighter,” said Dr. Harris Lieberman, acting chief of the military nutrition and biochemistry division at USARIEM. Whether it’s something tedious such as guard duty or monitoring electronic equipment, or something fast-paced such as a combat assault, a HooAH! bar can fulfill the energy need.

“We would never field any nutritional supplement that hasn’t been shown to be safe and effective in multiple studies, typically in DoD and also civilian studies,” Lieberman said. “There are lots of nutritional supplements, and we make sure they work. Some don’t, and some are harmful.”

Another difficulty for food scientists is to prove the viability of the additive for the entire shelf life, said Briggs.

The HooAH! bars that are being produced come in apple-cinnamon, chocolate, cran-raspberry, peanut butter, and raspberry flavors. They are prepared according to military ration standards and have no experimental additives, said Lieberman.

Still, that extra energy edge alone could make a difference when the stakes are high.

Natick already has a long history of producing irradiated foods for the space program. Natick pioneered irradiation in the 1960s as a method of food preservation and had its own irradiation equipment until the early 1980s. Today, foods are produced here and then irradiated at a facility run by Food Technology Service, Inc., with whom Natick has a Cooperative Research and Development Agreement.

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EDGEWOOD CB CENTER ENGINEERS ATTEND CHEMICAL SCHOOL TRAINING

Soldiers in the Mission-Oriented Protective Posture (MOPP) IV gear roamed around the wooded area. Suddenly, an alarm sounded, then “Gas, Gas, Gas!” a cry to action rang through the air to the engineers attending the Chemical and Biological training at Fort Leonard Wood in April 2000. A team of six engineers, who provide engineering and technical support and surveillance on various Nuclear, Biological and Chemical (NBC) equipment, traveled to the Chemical School at Fort Leonard Wood. The team wanted to experience how the soldiers are trained on the NBC doctrine and equipment and to understand the users’ perspectives of their equipment. Once their equipment is fielded, the majority of the engineers at Edgewood CB Center do not get the opportunity to deal directly with the fielded items at the user level. Therefore, their participation in the training at the Chemical School provided refreshing and educational perspectives of their equipment.

The engineers attended the first week of classes of the *Advanced Individual Training (AIT)*, which is a non-commissioned officer course. Subjects covered included NBC History, Policies, Chemical and Biological Agents, Protection, and Detection. The training was composed of classroom instruction, hands-on exercise, and field exercises for CB equipment. In the classroom, the platoon of AIT students’ response, “Sergeant, yes sergeant,” to the instructor was clear and loud, and they were eager to learn all about chemical and biological warfare. The instructor led the students one by one to the depth of chemical and biological warfare basics on the first day. During the next few days, the students learned all about the M22 Chemical Agent Automatic Alarm (ACADA), the M40/42 Protective Chemical and Biological Masks, and the Chemical Agent Monitor (CAM), which were developed at the Edgewood CB Center. Once the lecture was over, the students were given plenty of time for hands-on practice with the equipment. They had to study the operation and Preventive Maintenance Checks and Services (PMCS) of the equipment in order to prepare for the CB defense exercise at the end of the week.



In addition, the ECBC engineers were able to observe the Phase V Field Training Exercise (FTX). The FTX includes Smoke, Chemical and Radiation Survey, then Decontamination exercises. The soldiers were required to wear MOPP IV gear as they entered into the exercise. Luckily, the weather was a mild 70 degrees, and there was a constant breeze. However, the MOPP IV gear adds about 10 degrees of temperature to the soldiers, and it can cause heat exhaustion. Instructors told the soldiers to drink water to prevent dehydration. This is a tough reality for the soldiers. Comfort is not a high priority of the MOPP IV, yet it certainly provides the necessary protection. Unfortunately, the alternative in the chemical and biological warfare environment can be death. Nonetheless, the ECBC engineers took a mental note of the importance of human factor engineering during the design phase.

The decontamination exercise was divided into Detailed Troop, Detailed Equipment, and Operational Decontamination. During the detailed troop decontamination process, soldiers had to remove their contaminated MOPP gear. Individual soldiers used the M291 Skin Decontamination Kit to decontaminate exposed skin. Then he/she decontaminated their hood, mask, gloves, and weapons using the M295 Equipment Decontamination Kit. The personal decontamination technique is most effective when it is done within 15 minutes of being contaminated. The detailed equipment

decontamination process allowed the neutralization of the surfaces of the equipment. The operational decontamination included the complete wash down of the vehicle, which included the rinse, scrub, dry, and rinse cycles. The M12A Decontamination System, M13 Decontamination Apparatus, M17 Lightweight Decontamination System, and DS2 Solution were used for vehicle wash down. It is most effective to conduct the vehicle wash down within 1 hour of contamination. After that, the driver of the vehicle changed the contaminated MOPP gear for a clean set at the operation site.

The engineers benefitted in numerous ways from these experiences. Attending this training gave engineers a new appreciation for the equipment and the soldiers that use them. Soldiers and equipment are required to work together as one. As designers of these various pieces of chemical defensive equipment, the engineers discovered many nuances of man-machine interfaces, and gained true appreciation of the complexity of their mission. It was an enlightening experience for them to witness the equipment in use, the soldier's reactions, and the training methods required to enforce the lessons. In addition, a new respect for the sacrifices the soldiers make in our defense was realized.



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SMOKE ON BOATS

The Naval Surface Warfare Center Combatant Craft Department funded the Product Manager for Smoke and Obscurants to develop and demonstrate a 66-mm obscurant system for use on their riverine environment assault craft. The Rapid Obscurant System's (ROS) Team proposed and developed platform unique mounting hardware that attaches to the boat without tools or boat modifications. To leverage the obscurant systems already fielded, the ROS Team's proposal incorporates existing M257 dischargers and the M76 family of 66-mm obscurant grenades.

In April, testing of the obscurant system was conducted at M-Field in the Edgewood Area of Aberdeen Proving Ground. Four and eight grenade salvos were fired port, starboard, and aft of the boat and were analyzed for visual and IR obscurant effectiveness.

The ROS Team also used the prototype mounting hardware to attach a developmental IR smoke pot for the demonstration, and for potential future use. The IR smoke pot eliminates the fragmentation hazard associated with the M76 grenades, but is less mature and operationally capable at this time.

As a result of the field testing, operational testing on the water using the dischargers and grenades is scheduled in August in a riverine environment at Fort Knox, KY. The ROS Team has also demonstrated similar obscurant systems on two different Naval craft. As a result of these demonstrations, the Navy's next generation riverine craft have a requirement for an integrated obscurant system.

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FOREIGN MILITARY SALES (FMS) OF THE M56 SMOKE GENERATING SYSTEM

The Government of Taiwan has signed a formal FMS Letter of Offer and Acceptance to purchase 54 M56 Smoke Generating Systems, 54 M56 host vehicles (the M1113 High Mobility Multipurpose Wheeled Vehicle), infrared smoke material, spare parts, and technical manuals. The M56 Smoke Generating System is managed by Product Manager Smoke and Obscurants and is the U.S. Army's premier motorized, multi-spectral smoke generator providing large area obscuration in the visible and infrared (IR) spectra ranges.

This FMS case represents over \$17 million in sales for the U.S. Army. The SBCCOM portion of this sale is over \$11 million. Taiwan has expressed an interest in additional training requirements for the M56s delivered under this case and also has indicated a need for additional M56 systems in the near future. This is the first approved FMS sale of the M56 Smoke Generating System.

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INTERAGENCY AGREEMENT (IAA) WITH NATIONAL INSTITUTE FOR STANDARDS AND TECHNOLOGY (NIST)

The Technical Director signed an IAA with NIST in May, which is currently being staffed for signature at NIST. The agreement is for NIST to fund SBCCOM to work jointly with the National Institute for Occupational Safety and Health (NIOSH) for the development of respiratory Chem-Bio standards and test methods for commercial respirators for use in WMD terrorist incidents.

SBCCOM will provide much of the technical and test expertise in this cooperative agreement. NIST is also funding NIOSH for the effort.

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JOINT JOINT INTEGRATED PRODUCT TEAM MEETS

No that's not a typo, the Joint Service General Purpose Mask (JSGPM) Joint Integrated Product Team (JIPT) met *JOINTLY* with the Joint Service Aircrew Mask (JSAM) JIPT in March at Panama City, Florida. This was the 3rd JSGPM Joint IPT and this time the Navy was the host service and selected the location. Panama City is the site of the Naval Coastal Systems Station (NCSS), which is part of the Naval Sea Systems Command. The *Joint JIPT* Code Named "Global IPT" was a success in many ways. It was the best attended IPT of all with more than 60 personnel attending and it was the best in terms of information exchange among the JSGPM IPT and between the JSGPM and JSAM IPT's. Rick Decker the JSGPM System Manager thought the idea would be a good one when discussing the scheduling of the JSGPM JIPT with the Management team. There was always some conflict with the JSAM IPT members since many personnel work on both programs. So Rick said

The Global IPT was also innovative in another way in that it was practically paperless. All presentations were electronic and all minutes, action items, and copies were collected electronically and distributed on CD-ROM.

A display similar to the booth display used at trade shows and symposia was set up in the room with the latest posters of PM-NBCDS equipment. This became a gathering area for side bar discussions and socializing, which is also an important ingredient of these meetings to have good working relationships with the other services' members.

Besides the Global IPT meeting itself, it provided an opportunity for other meetings to be scheduled prior to the actual IPT meeting. The Mask Working Group, which is a subset of the Test IPT, met on the 7th to discuss the test methods and Test Operating Procedures necessary for the Developmental Testing of both JSGPM and JSAM. Since the JSGPM program is about



"Let's meet at the same time" and avoid conflicting schedules. "Good Idea" they said and thus the "Global IPT" became a reality. So it was also successful in other ways of logistics and cost avoidance by saving travel costs and time by not having a separate JSAM IPT at another time and place.

12 months ahead of the JSAM program in the development cycle, the JSAM people benefited greatly from our experience and knowledge, which jump started their efforts, thus saving time and money.

The management IPT also met prior to the Global IPT and had the opportunity to discuss the

management, budget, funding and source selection issues face to face.

We were also grateful to Jim Byrnes who is the Intelligence process manager for the Joint Service Materiel Group for his excellent briefing and threat update. The fact that both programs met Jointly was an effective and efficient way to present the newest threat information to both development teams. It was no surprise to us that Jim's briefing was the highest rated briefing on the surveys. Jim is so knowledgeable and prepared and does a great job. Thanks again Jim.

The location of the meeting at the NCSS also gave us an opportunity to perform some compatibility studies on the XM50 mask prototype and JSLIST Chemical Biological Protective Suits and the Landing Craft, Air Cushion (LCAC), which are located there since the Station is designated the Navy's LCAC In-Service Engineering Agent.



The LCAC is a Navy high-speed fully amphibious landing craft capable of carrying a 60-ton payload. The primary role of the LCAC is to transport weapon systems, equipment, cargo, and personnel of a Marine Air/Ground Task Force from well deck equipped amphibious ship to shore and over the beach at speeds greater than 40 knots.



Carol Hillen and Skip Richardson of the JSGPM team examined and documented the interfaces the mask must be compatible with in, on, and around the LCAC for the operators and maintainers. This information is kept in a database that they maintain for use in mask design.



A survey questionnaire was distributed, which the attendees were asked to complete and return. We wanted to determine the degree of customer satisfaction with the new format and the other new ideas introduced in this Global IPT. Of the 63 surveys, 39 were returned with comments, a better than average percentage. All returned surveys said they liked the idea of the Global IPT and said it should be continued. So I would say it was a success. Maybe the location also had something to do with the positive responses. Now it's the USMC's turn to host the next JIPT meeting and to choose a suitable location. They will have the benefit of the Navy's experience and the results of the feedback surveys and all the lessons learned to make their meeting even better than this one. The Corps always likes a challenge.

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M40 MASK TEAM AND ILC DOVER PRODUCE ONE MILLIONTH MASK

In September 1988, two production contracts were signed to build M40 masks. One of these contracts was with ILC Dover of Frederica, Delaware. The first M40 Mask came off the production line on September 30, 1991. On March 27, 2000, the Government took possession of the 1,000,000th mask off that production line.

Back in 1988, the M40 Mask Team was made up of about 18 personnel; today, the team at Edgewood functions with three. These three people have been on the team from the beginning, and they are Sam Carter, Mack Goodman, and Steve Kaminsky.

In 1988, the mask cost about \$150, today the cost is \$90. This reduction in cost was accomplished over the last 12 years by the engineering, program management, and partnering efforts of both ILC Dover and the Government. ILC Dover still produces about 700 masks per day, and each one of these masks are fielded within a few months of production.

In 1988, the M17 Series mask was the warfighters main protective mask. In 2000, over 1.5 million M40 Masks have been produced to successfully fill that requirement and are the primary infantry mask for the U.S. Army and the U.S. Marine Corps as well as surety and demilitarization workers.



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Fieldings

 <p><i>M56 Smoke Generator</i></p>	<p>318th Cml Co., Ft. McClellan, TX</p> <p>POC: Randal H. Loiland AMSSB-PM-RSM-M, DSN 584-2806</p>	<p>Jul 00</p>
 <p><i>M58 Smoke Generator</i></p>	<p>360th Cml Co., Ft. Chaffee, AK</p> <p>POC: Janice A. Nordin AMSSB-PM-RSM-V, DSN 584-2838</p>	<p>Sep 00</p>
 <p><i>Light Vehicle Obscuration Smoke System (LVOSS)</i></p>	<p>Ft. Campbell, KY Ft. Bragg, NC Ft. Hood, TX 164th MP Co., Ft. Richardson and Ft. Wainwright, AK</p> <p>POC: Henry St.Pierre AMSSB-PM-RSM-R, DSN 584-5527</p>	<p>Jul 00 Aug 00 Sep 00</p>
 <p><i>Improved Chemical Agent Monitor</i></p>	<p>Ft. Stewart, GA Hunter AAF, Savannah, GA Ft. Riley, KS</p> <p>POC: CPT Scott Morris AMSSB-PM-RNN-T, DSN 584-6551</p>	<p>Jul 00 Jul 00 Aug 00</p>

 <p><i>M40A1/M42A2 Mask</i></p>	<p>Indiana National Guard New Jersey National Guard Wyoming National Guard North Dakota National Guard</p> <p>POC: CPT Scott Morris AMSSB-PM-RNN-M, DSN 584-6551</p>	<p>Jul 00 Jul 00 Aug 00 Aug 00</p>
 <p><i>M45 Aircrew CB Protective Mask</i></p>	<p>Texas ARNG 1st Cav, 4th ID, Ft. Hood, TX USAREUR Ft. Irwin, CA 25th ID, Honduras Hawaii Army National Guard</p> <p>POC: CPT Scott Morris AMSSB-PM-RNN-M, DSN 584-6551</p>	<p>Jul 00 Jul 00 Aug 00 Aug 00 Sep 00 Sep 00</p>
 <p><i>AN/UDR-12 Pocket Radiac</i></p>	<p>25th ID, HI 8th Army, Japan</p> <p>POC: CPT Scott Morris AMSSB-PM-RNN-M, DSN 584-6551</p>	<p>Jul 00 Sep 00</p>
 <p><i>M22 Automatic Chemical Agent Alarm</i></p>	<p>4th ID, 1st Cav, Ft. Hood TX Ft. Bragg, NC 101st, Ft. Campbell, KY</p> <p>POC: CPT Scott Morris AMSSB-PM-RNN-A, DSN 584-6551</p>	<p>Jul 00 Aug 00 Sep 00</p>

END ITEM UPDATES:

CONTAINERIZED CHAPEL. The Department of the Army and the U.S. Army Materiel Command approved the establishment of 40 Containerized Chapels in Operational Project. Packaging and fielding will be done as a system similar to Force Provider.

NBC DEFENSE EQUIPMENT

AEROSOL CALIBRATION OF THE BAWS. Dr. Jerry Bottiger, Edgewood CB Center, spent a week at Battelle Columbus Laboratories, at the request of the PM Joint Biological Point Detection System, generating BG particles using the Ink Jet Aerosol Generator to calibrate the response of the BAWS, which was developed at MIT Lincoln Labs. The Ink Jet Aerosol Generator, invented and patented at Edgewood by Dr. Bottiger and Mr. Paul Deluca, is a revolutionary device for making controlled concentrations of precisely sized particles. The BAWS measures the fluorescence signature of aerosol particles to detect the presence of biologicals in the air.

COMMODITY RADIATION LICENSE. The application for the Nuclear Regulatory Commission (NRC) license for the CAD, CAM, ICAM, and ACADA to accept the transfer of mission from TACOM-RI has been staffed and forwarded to the NRC for review. The PM-NBC and IMMC participated in the preparation of the license application. It is anticipated that with coordination with the NRC and their approval of the license, SBCCOM can accept the transfer by 1 Oct 00, as planned.

Reconnaissance, Detection, and Identification –

M18A3, M30A2, and M272 Detector Kits – The SBCCOM-Rock Island Detection/Decon Team, in association with TACOM-Rock Island, recently awarded a requirements contract for the M18A3, M30A2 and M272 Detector Kits to Truetech, Inc. of New York. A cost reduction is realized in this contract compared to the last procurement of these items as a result of the acquisition techniques used, such as bundling similar product together.

NBC Reconnaissance System – In April, MG John Doesburg approved the Security Classification Guide for the NBCRS family of vehicles. This document consolidates previous revisions and reflects current security requirements.

M22 Automatic Chemical Agent Alarm (ACADA) – The Configuration Control Board approved an Engineering Change Proposal adopting the confidence sampler designed for the ICAM in lieu of the confidence sampler presently supplied by the contractor. This is the result of a successful OSCR program.

CAMSIM – The standard CAMSIM is designed for operators to be trained in the “art of vapor detection.” The Marine Corps has decided to accept the CAMSIM in the same configuration as the other services. This decision means that CAMSIMs will be the same throughout the Department of Defense.

Improved Chemical Agent Monitor – Intellitec was a contractor recipient of the **FY99 AMC Value Engineering Award**. The multi-million dollar savings on the ICAM contract led to their selection. Mr. Jerry Taulbee, our contract specialist at the time, was selected as the Value Engineering Procurement Personnel Award winner for both the U.S. Army Materiel Command and the Department of Defense.

XM94E1 Long-Range Biological Standoff Detection System (LR-BSDS) – The LR-BSDS program is being terminated based upon a message received on March 14th, 2000, from BG Cain, Joint Program Manager, Joint Program Office for Biological Defense.

Low-Cost Advanced Airborne Radiac System (LCAARS) – We were funded by Defense Threat Reduction Agency (DTRA) to develop and test a prototype LCAARS. This project is an outgrowth of an SBCCOM *skunkworks* project, which we did a year ago. It will result in an airborne radiation point sensor that can be used in helicopters and UAVs as well as a radiation spectrum analyzer that can be flown on the same platforms. The spectrum analyzer in a UAV was originally proposed by the Air Force. DTRA has asked us to manage the entire project.

Virtual Emergency Response Training Systems (VERTS) – STRICOM has decided to use the Veridian Immersive Simulator already procured and will be able to demonstrate the VERTS at the World-Wide Chemical Conference.

Individual Protection –

XM50 Joint Service General Purpose Mask (JSGPM) – In March, SBCCOM announced the award of the Program Definition, Risk Reduction (PDRR) contract to Avon Rubber and Plastics of Cadillac, MI. The basic contract is for \$9.1M for the PDRR phase and a period of performance of 24 months. The Avon team includes SAIC of Abingdon, MD, and Guild Associates of Columbus, OH. The basis for the contract award was the best overall value to the government. The JSGPM will replace the five existing general purpose protective masks currently used by all the services. The JSGPM will reduce the Total Ownership Cost and logistical footprint for the masks it will replace. Key performance parameters include improved performance against CB agents and selected Toxic Industrial Materials, lower weight and bulk, improved compatibility with current and future equipment and improved reliability. PM-NBC Defense Systems is the lead materiel developer for this Joint Service program.

M14 Mask Leakage Tester – The Individual Protection Materiel Team at Rock Island completed the Technical Data Package portion of the Procurement Package Input for the small and medium peripheral seal tubes. The buy will require refurbishment of government owned unique mold tooling or manufacture of new. A draft scope of work for the tooling alternatives is being coordinated. Requirements for the tubes will be increasing from approximately 24 per year to over 400 per year to support the Smart Man Live Agent Tester to be used for the Joint Service General Purpose Mask program. The M14 Tester is the current standard mask leakage tester for all Army masks.

M40/M42 Series Mask –

- A 5-year requirements contract was awarded to Harris Manufacturing, Inc. to produce the Quick Doff Hood for the M40A1/M42A2 mask.

- ILC Dover delivered the 1,000,000th mask to us early in April. ILC has been producing the mask for over 8 years and averages about 750 masks per day. We have procured about 1.5 million M40 masks to date.

M43 Apache Mask – Because fielding of the M48 Mask has been delayed, the M43 Apache Mask will be sustained in the field longer than anticipated. A rebuild/repair program has been implemented at Pine Bluff Arsenal to make continued sustainment viable. The shelf life of the batteries for the M43 was extended until March 2001. A new battery purchase will deliver batteries by December 2000, thereby eliminating shelf life concerns. Plans are being developed to modify the M48 to meet Apache needs.

M48 Chemical Biological Apache Aviator Mask – Work has started on the bracket design project. The bracket will be used to mount the Lightweight Motor Blower (LWMB) onto an existing bracket currently in the AH-64 Apache airframe, thereby precluding the need for a formal Apache Modification Work Order. The LWMB, when hard mounted, must meet the Apache crash worthiness standards for cockpit mounted equipment. The SBCCOM team is working with PM-Apache, PM-ACIS, Aviation School, and the Aviation RDE Center on this project.

Collective Protection –

Stockpile Inspection at Bluegrass Army Depot. A team from SBCCOM Rock Island visited the Bluegrass Army Depot in May and completed an inspection of their collective protection equipment stockpile with the objective of salvaging unserviceable items valued at \$8M. Some of the stock was 1957 production vintage and field return from Operation Desert Storm, all of which are currently condition coded F. The M20 Simplified Collective Protection Equipment, M14 Protective Entrances, M7A1 Gas Particulate Filter Units, and M14 Gas Particulate Filter Units were tested in accordance with the Quality Assurance sampling requirements. Several samples of liners and M7A1 gas particulate filter units are being shipped to Edgewood for specific functional tests; and if successful, the stocks will be upgraded to a serviceable condition. These items are urgently needed to support the U.S. Army and customers.

M8A3 Gas-Particulate Filter Unit (GPFU) – A quantity of 20 M8A3 GPFUs were upgraded to condition code ‘A’ at Blue Grass Army Depot after successful testing at the Edgewood Lab. This allowed for the release of nine back orders.

M13 Particulate Filter – Enough filters were received to eliminate the back order. This filter is used in the M8A3 Gas-Particulate Filter Unit to remove toxic gases, dusts, and aerosols from the air and supply purified air to the occupants of certain armored vehicles.

M28 Collective Protective Equipment (CPE) – The contractor for the M28 CPE recently delivered the Army’s ninth Hospital Unit Base (HUB). There are three remaining to be delivered on this contract with a production rate of one per month. The HUB is an integral part of the Chemically Protected Deployable Medical System (CP DEPMEDS). The estimated value of one HUB is over \$700K.

M48A1 Gas-Particulate Filter Unit (GPFU) – In April, a delivery order of \$743,000 was awarded for 1,000 M48A1 GPFUs on a long-term contract with Hunter Manufacturing Company. The M48A1 Filter is used primarily in the M1A1/M1A2 Abrams Tank. It is also used in the Paladin and will be used on the Bradley A3, Grizzly, Wolverine and shelters that use the M93 GPFU such as Joint Surveillance Target Attach Radar System, Forum Arms Air Defense, Integrated Family Test Equipment, and Biological Integrated Detection System.

Decontamination –

M12A1 Decontamination Apparatus – The IMMC Decon/Munitions Team assisted in the lateral transfer of two serviceable M12A1 Decon Apparatuses. The M12A1 Decons, which cost over \$21,000 each, are in short supply as both production and repair ceased in the mid 90s. The excess assets were transferred to fill requirements in two National Guard units.

Decontaminating Resin, Ambergard XE-555 – In May, the fourth delivery order for decontaminating resin was awarded against a long-term requirements contract with Truetech, Incorporated. The order was for a total of 18,359 lbs of resin. Total value of the delivery order was \$1,466,417.79. SBCCOM IMMC (RI) and the TACOM (RI) contracting office accomplished this action to maintain the availability of decontaminating resin to support the production of the M291 Skin Decontamination Kits at Pine Bluff Arsenal.

M295 Decontamination Kits – A long-term contract was awarded in February. This 5-year contract will provide critically needed Kits. Delivery of initial order quantity of 13,900 boxes will begin immediately after final order quantity on urgency add-on buy is completed. Production on the current contract will be accelerated to 2,400 kits per month.

Sorbent Decontamination Systems –

- Developmental Test Command completed the Safety Confirmation of the Sorbent Decon System. For Immediate or Hasty Decontamination, the main concern identified was the sorbent/agent/mitt combination, which should be treated and managed as a safety and environmental hazard. The suggested method of containment is to double bag the used mitt.

- As of June 1st, Guild Associates produced and shipped 60,000 pounds of sorbent decontaminating powder this year. Since the alumina-silica sorbent is about \$60 per pound cheaper than XE555 resin, this represents a cost savings of \$3.6M to the government. To date, the M295 contractor, Truetech, has successfully manufactured and delivered 8,704 boxes of M295 kits with sorbent powder

SMOKE SYSTEMS

M58 Wolf Smoke Generator System –

- In February, PM-Smoke provided on-site troubleshooting of four M58 systems and expedited shipment of repair parts so as not to disrupt the next training rotation at the National Training Center in Fort Irwin, CA. In March, troubleshooting guidance was provided to the 46th Chemical Company in Fort Hood, TX, resulting in one system being restored to mission capable status. In April, coordination between PM-Smoke, SBCCOM-RI Smoke Team, and the 4th Chemical Company resulted in an expedited shipment of repair parts to assist a unit in maintaining operational readiness.

- In March, PM-Smoke presented an M58 maintenance briefing to Logistics Assistance Representatives at SBCCOM, Natick, MA. The briefing addresses maintenance/troubleshooting tips, technical manual changes, and planned improvements to the M58 system to lower life cycle costs.

- In April, an Engineering Change Proposal was approved, adding two black storage covers to the Basic Issue Items drawing. The covers will be added to the Provisioning Master Record. One storage cover is used on the turbine exhaust outlet and prevents water from entering the exhaust duct. The second cover is used on the IR ejector outlet. Corrosion within the grinder assembly has been attributed to rainwater entering the IR ejector. A procedure was identified to clean the grinder assembly of corrosion, and the M56 and M58 teams will incorporate the fix in their deprocessing/fielding efforts.

- In May, an event in Korea resulted in a change to the Technical Manual to the M58 Direct Support maintenance task involving the removal of the turbine from the turbine compartment. The fire extinguisher tube assembly was accidentally broken off during the turbine removal task. The TM contains a step which requires the removal of the \$236 part; however, because the step was inadvertently left as a “lone” step at the top of the illustration page, it was overlooked during the removal process. The TM contractor was notified to make the correction.

- The Army Electronic Product Support site (<http://aeprs.ria.army.mil>, password protected) at SBCCOM-RI now incorporates links from the current M58 product pages to newly developed maintenance information pages. The new pages were added to provide customers up-to-date maintenance information to include lessons-learned and maintenance tips. Information on the Driver’s Vision Enhancer has been added to the maintenance pages, and additional updates will continue to be posted chronologically on the web site.

M90 Smoke Grenade –

- The FY00 production contracts to make 81,012 M90 smoke grenades were awarded to Lewis Engineering for the grenade bodies and to Tool Masters for the smoke grenade canisters.

- Full Material Release of the M90 Smoke Grenade was approved in March. The M90 is primarily fired from the Light Vehicle Obscuration Smoke System (LVOSS). The grenades will be fielded to Military Police Combat Support and Infantry Delta Companies who are also receiving the LVOSS launcher.

XL96 and XL97 Anti-Riot CS Grenades – The Safety and Health Data Sheet and the System Safety Risk Assessment are complete and approved for the XL96 Anti-Riot CS Grenade and its trainer, the XL96. The U.S. Army Insensitive Munitions Board was briefed with the results from Insensitive Munitions Tests conducted on the XL96 and XL97. All reactions were assessed as type 5, the lowest order, and no further Insensitive Munitions tests are required.

XM98 and XM99 Non-Lethal Grenades –

- The Safety Assessment Report was approved for the XM98 and XM99 Non-Lethal Grenades.
- The Developmental Test Readiness Review for the XM98/99 Non Lethal Grenades Production Qualification Test (PQT) was successfully conducted by correspondence. Recommendation to proceed with PQT was approved in May by LTC Welch, PM–Smoke.
- The Independent Government Estimates for the XM98 and XM99 were completed. The estimates were compared to the out-of-pocket costs for Pine Bluff Arsenal to assemble the grenade. The Make or Buy study was completed, and Pine Bluff Arsenal was selected as the production manufacturer for the grenades.

M6 Discharger – The production contract for the M6 Discharger was awarded to Industrial Machining and Design Services, Inc., Warren, OH. This company is an 8A contractor under the Small Business Administration.

Millimeter Wave Preplanned Product Improvement – The solicitation was posted on the World Wide Web site for prospective bidders; the closing date to submit bid packages was April 12th.

M37 Mid-Sized Riot Control Agent Dispenser – The first batch of repair kits supporting the M37 Dispenser were completed through a joint effort between the Smoke Core Team and the Edgewood Center Pattern and Plastics Shop and shipped to the field. The U.S. Army Reserve Command is the first Command to receive M37s since it was Materiel Released on April 5th.

M1059 Mechanized Smoke Vehicle – The M1059 modification was applied to six vehicles for the 434th Chemical Company of the Minnesota Army National Guard in May. The modification team traveled to Massachusetts to modify six vehicles for the 272nd Chemical Company of the Massachusetts Army National Guard in June. This fiscal year, 47 mechanized vehicles have been modified.

DATA ITEM DESCRIPTIONS (DIDs)

The current DIDs for ordering Configuration Management (CM) data on contracts, including Engineering Change Proposals (ECPs) and Requests for Deviations (RFDs) on production contracts, reference MIL-STD-973 and MIL-STD-2549. The DoD has directed that these two MIL-STDs be canceled effective September 30th. The DoD proposed DIDs to replace the current DIDs do not require sufficient detail to facilitate the timely review and disposition of ECPs and RFDs. In addition, where there has been an industry CM standard released that replaces MIL-STD-973, the industry standard to replace MIL-STD-2549 is several years off. The Army feels strongly that a MIL-STD-2549-like document remain active until a suitable industry standard is available; therefore AMC plans to issue AMC-TD-2549 by 30 Sep 00.

CHEMICAL DEFENSIVE EQUIPMENT GO-TO-WAR REQUEST

An SBCCOM IMMC(RI) representative developed an internet-based ordering system for authorized units to obtain stocks from the Chemical Defense Equipment Go to War program. A fielding of CDE to 7th Chemical Company was used to test the system in May. Receipt of equipment by the unit was less than 72 hours from the time of submitting initial online request, including review and approval by FORSCOM and HQDA LOG OPS Centers and shipment from Blue Grass Army Depot. This system significantly enhances efficiency in the ordering, approval, and issuing processes for this program.

ENGINEERING/ACQUISITION BUSINESS PROCESSES AT SBCCOM IMMC (RI)

A contract was awarded to refine and automate SBCCOM IMMC (RI) acquisition processes to be independent of the Rock Island JEDMIC system now being used in the technical data portion of the Procurement Package Input process. In addition, the new process is expected to incorporate electronic work flow, such as JCALS, for the acquisition business process from requirements determination to contract award. A start of work meeting was held in May for this effort. Contract completion is scheduled for September 2000.

DEMIL F DATABASE

Mr. Fisher attended a demonstration at the Defense Logistics Agency of the recently developed DOD demil F database, which provides demil instructions for all of DOD's demil F items. This database is accessible through the AEPS web site at <http://aeaps.ria.army.mil>, which is a password protected site.

ENGINEERING DATA MANAGEMENT INTEGRATION

In May, the Integrated Materiel Management Center, Natick Soldier Center, and IMD conducted a teleconference with the Edgewood CB Center to plan for the final migration of the Soldier System Center's engineering data to the Product Data Management system at Edgewood. The completion of migration of data and integration of the two sites is now projected for the middle of July 2000. When completed, the Natick and Edgewood sites will be connected to a single virtual data management system, saving approximately \$1M over establishing systems at each major site.

HELP LINES/TOLL-FREE NUMBERS

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

BRIEFS

BW IMPROVED RESPONSE PROGRAM (BW IRP). The Department of Health and Human Services provided comments to the “Interim Planning Guide for Improving Local and State Agency Response to Terrorist Incidents Involving Biological Agents.” After these comments are incorporated, it is planned to put the guide on the World Wide Web and send copies to the 120 training cities emergency management and public health offices and all the state’s public health offices.

NCRSO ACTIVATION. In March, the Military District of Washington (MDW) hosted the activation ceremony for the National Capitol Render Safe Organization (NCRSO) at Fort Belvoir. MG Ivany, Commander MDW; MG Doesburg, Commander SBCCOM; and COL Goodwin, Commander 52nd Group were guest speakers. The NCRSO is comprised of Delta Company Technical Escort Unit and the 55th EOD under the daily command and control of TEU and 52nd Group respectively and OPCON to the MDW upon notification. The NCRSO will be stationed at Fort Belvoir and is working out of temporary facilities until building construction is completed in the summer 2001.

REMEDICATION OPERATION IN GUAM. A safety engineer from ECBC’s Risk Management Division was invited to take part in the pre-operations survey of the remediation operations in Mongmong, Guam. The survey was performed in March and was chaired by the DA Safety Office. The survey team consisted of safety and health professionals from SBCCOM, Project Manager for Non-Stockpile, and U.S. Army Center for Health Promotion and Preventive Medicine. The remediation operation will be taking place on the former 5th Field Marine Supply Depot. The mission is to remove chemical agent identification sets that were probably buried there during World War II. Operations were scheduled to begin the last week in March and will be managed by the Army Corp of Engineers, Pacific Ocean.

NBC INSTALLATION PROTECTION. We received a letter of endorsement from BG Thomas Turner, Chief of Staff, XVIII Airborne Corps, Fort Bragg, highly recommending the NBC Installation Protection program for other military installations, particularly power projection sites. Of particular mention is that Fort Bragg received a “green” rating in the WMD area of their Force Protection program; the only FORSCOM installation (out of 11) to received the green rating in this area. We are anticipating a similar letter of endorsement from Pope Air Force Base.

DOMESTIC PREPAREDNESS PROGRAM. On April 7th, President Clinton signed a memo designation the Attorney General as the lead for the Domestic Preparedness Program effective October 1st. The Department of Defense will retain some portions of the Domestic Preparedness Program that pertain to military response units and installation responders.

MODELING AND SIMULATION (M&S) WORKING GROUP. In April, Dr. John White met with the new M&S Commodity Area Manager, Mr. David Grenier (Naval Surface Warfare Center, Dahlgren) and the principals from the other Services to establish the CB M&S Commodity Area Working Group (CAWG). This organization will advise the CAM on CB M&S from 6.2 Tech Base developments through the fielding of operational systems.

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

In March, we hosted the President of Maryland Technology Development Corporation (TEDCO) on a short tour of the Edgewood CB Center. TEDCO was created by the Maryland State Legislature and reports to the Governor. Their mission is to foster the development of a technology economy in Maryland. One of their program areas is technology transfer in the biotechnology area. On our tour, we visited the Rapid Prototyping Facility and the Bioprocess Engineering Facility. We discussed the processes for using these facilities for commercial work; e.g., CRADA and TSA processes, and what we were doing with businesses in Maryland.

Cooperative R&D Agreement (CRADA)

A CRADA with GEO-CENTERS, Inc. was signed and forwarded to the Army Research Lab for final review and approval. The objective of this CRADA is to conduct collaborative R&D in the areas of surface spectroscopy and electron microscopy, biotechnology process development, nuclear magnetic resonance, and biological and life sciences research, with the aim of developing technology capabilities and related services for the commercial sector and other non-traditional users of Edgewood CB Center capabilities.

Testing Services Agreement (TSA)

A Test Service Agreement with Lockheed Martin Librascope was signed by Mr. McKivrigan, Director of Engineering. The purpose of this TSA is to perform environmental testing on two Multipurpose Integrated Chemical Agent Alarm (MICAD) systems. Testing is required to support Lockheed Martin Librascope's contract on the

MICAD. The TSA will generate approximately \$27,975 for Edgewood.

TSAs with Battelle Memorial Institute Columbus Operations, Southern Research Institute, and Veridian Engineering, Geomet Technologies Inc., and Southwest Research Institute have been signed by Mr. Zarzycki, ECBC Director. The purpose of these TSAs is to provide a mechanism for SBCCOM to certify the operation of Contractor Owned Contractor Operated (COCO) chemical agent testing laboratories, as required by regulations. Each of these TSAs will generate approximately \$30,000.00 for ECBC; Brian Kowalski, AMSSB-RCB-RS, DSN 584-2573, is the POC. TSAs are pending with the three remaining COCO labs.

A TSA was also signed between ECBC and Graseby Dynamics Limited to provide systemic warranty, agent, and interference rejection verification testing for the M22 Automatic Chemical Agent Alarm. This TSA will generate approximately \$11,419 for ECBC. Mr. Thomas Mitchell, AMSSB-PM-RNN-A, DSN 584-5632, is the POC.

ECBC also entered into a TSA with the Gillette Medical Evaluation Laboratories. Under this agreement, ECBC will participate in an inter-laboratory validation study of the human corneal epithelial cells-tranfected (HCE-T) transepithelial permeability (TEP) assay, a new in vitro test method which could be used as an alternative to the Draize rabbit eye irritation test for the prediction of the human eye irritation potential of water-soluble surfactants and surfactant-containing formulations. This TSA will generate approximately \$77,210 for ECBC. Dr. Cheng Cao, AMSSB-RAS-BM, DSN 410-436-5914 is the POC.

Patents

U.S. Patent No. 6,017,750, "Hydrolysis and Biodegradation of the Chemical Warfare Vesicant Agent HT," was awarded to Dr. Steven Harvey, Environmental Technology Team, Ms. Linda Szafraniec, and Mr. William Beaudry, Analytical Chemistry Team, on 25 Jan 00. The patent

describes a process for the chemical neutralization/detoxification of HT (a mixture of HD and T - bis-(2-(2-chloroethylthio)ethyl)ether) to form thiodiglycol (TDG) and the related product from T (T-OH). The mixed product is pH adjusted with sodium hydroxide and fed to a bioreactor where an adapted bacterial culture (derived from sewage sludge) converts it into carbon dioxide, water, and inorganic salts. This is essentially the same process that is now being scaled up at the ABCDF to destroy the APG stockpile of HD.

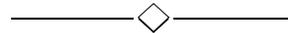
Patent Number 6060710 entitled "Infrared Mueller Matrix Detection and Ranging System," Arthur H. Carrieri (R&T), Jerold R. Bottiger (R&T), David J. Owens (Quetron Systems, Inc.), and Erik S. Roese (Quetron Systems, Inc.), inventors, was assigned to the U.S.A. as represented by the Secretary of the Army, Washington, D.C. This invention relates to an active remote sensing system that identifies chemical and/or biological materials (CBMs) at a distance by interrogating the material with polarization-modulated infrared laser light. The phase-modified backscattered radiation is collected, modulated a second time, and recorded in the form of a scattergram. Additionally, this device and its method can determine the distance to the CBMs (range-find) by comparing the single modulation component of incident and backscattered light. The application of this system's technology provides an extraordinarily sensitive CBM sensor, yielding much improved accuracy and discrimination capability over other comparable active remote sensing systems.

Dr. Charles Wick was granted a Patent #6,051,189, "System and Method for Detection, Identification, and Monitoring of SubMicron-Sized Particles" on 18 April 2000. The new instrument and methodology includes steps for collecting, purifying, detecting, and identifying submicron particles. The submicron particles include viruses and virus-like agents. The new instrument and methodology is rapid and allows these agents to be detected based only on their physical properties without the use of biochemical reagents or assays. This new instrument has been used to detect the passage of viruses through various molecular weight filters; viruses contained in dirty backgrounds and has been instrumental in advancing current knowledge in the physical behavior of these particles.

Other Cooperative Research

The Modeling and Simulation Team submitted a joint proposal with United Technologies Corporation in response to the DARPA Sensor Integration and Modeling for Biological Agent Detection (SIMBAD).

POC: Office of Research and Technology Applications, DSN 584-4438, commercial (410) 436-4438, email address is techt@sbccom.apgea.army.mil



TECHNICAL INDUSTRIAL LIAISON

CB Defense Advance Planning Brief to Industry

The next CB Defense APBI is scheduled for September 19-21, 2000. NDIA has mailed out postcards announcing the APBI. We provided the agenda to them, and they are now preparing the conference brochure. Plans are to mail the brochures out by mid-July. Attendees can register for the APBI at NDIA's Web Site, www.ndia.org.

Small Business Innovation Research (SBIR)

The following Phase I SBIR contracts have been awarded at ECBC:

- (a) Luna Innovations (Field-Deployable Chemical Point Detection Network)
- (b) MesoSystems Technology (Miniaturized Sample Preparation Module and Development of a Miniaturized Biological Detector)
- (c) Q PEAK (High-Pulse-Rate IR Source for Improved DIAL Sensitivity)
- (d) Science & Technology Corporation (Improved Sensitivity for LIDAR-based CB Standoff Detection)
- (e) Quantum Magnetics (Detection of BW Agents using Quadrupole Resonance)

(f) EIC Laboratories (An Advanced SERS Water Monitor for CB Analytes)

(g) Triton Systems (Hand-held RCC Chemical Agent Water Monitor)

(h) Optimetrics (Chemical Immobilizing Agents for Non-Lethal Applications)

The Army has chosen an additional Phase II SBIR proposal for ECBC contract award. The proposal is from Syagen Technology and is entitled, "Field-Portable, Real Time Chemical Analysis System". We will receive \$749,000 to fund this 2-year effort. Procurement action is underway.

Nine Phase II SBIR proposals have been received and evaluated at ECBC. We await further review at DA level before it is known which have been selected for award. Those proposals selected will receive awards by November 10th.

Four ECBC topics have been approved by DDR&E for inclusion in the 00.2 DoD SBIR Solicitation. These topics are:

(a) Combinatorial Screening of Synthetic Manomaterials for Chemical/Biological Agent Detection;

(b) Nontoxic Biodegradation Nanomaterials and Biomaterials Signature Reduction;

(c) Stabilization of Enzymes for the Destruction of Toxic Materials and Chemical Agents; and

(d) Company, Lightweight, Modular Infrared Spectroscope for Chemical and Biological Agent Detection.

The pre-solicitation opened on May 1st. The formal solicitation opened July 3rd and closes August 16th.

Edgewood POC: Mr. Ronald P. Hinkle, AMSSB-RAS-C, DSN 584-2031

In March, Natick Soldier Center was notified that two new Phase I SBIR projects had been selected for funding. The projects will receive a total of \$140K for the two six-month efforts. The two research projects deal with improved chemical protective gloves and novel composite fabric for Chem-Bio protection. This is the first time Natick Soldier Center has submitted topics and received funding for proposals in the special Chem-Bio Defense SBIR solicitation.

Broad Agency Announcements

In March, APG Contracting released Broad Agency Announcement (BAA) DAAD05-00-T-7192 for Counter-terrorism. It is completely paperless. The BAA package is on the Internet and proposals will be received electronically. Offerors will also be able to see their evaluation status on the Internet and be notified when they are to submit further proposals.

A BAA contract was recently awarded to the University of California - Berkley to identify, analyze, and sequence specific chromosomal and plasmid genetic signatures of the Bacillus anthracis group.

INTERNATIONAL COOPERATIVE R&D

Multilateral

The Technical Cooperation Program (TTCP)

Dr. Savage, U.S. National Representative for the TTCP Group on CBR Defense hosted a U.S. Position Meeting in May. Positions were developed for the next annual meeting to be held in the UK on June 5th. Each of the Technical Panels and Action Groups briefed their progress over the past year, results of their meetings and any issues which require the National Representative's involvement.

Dr. Jim Savage (U.S. National Representative) and Mrs. Susan Luckan (U.S. Technical Advisor) attended the annual meeting of the CBR Group in June in the UK. The National Representatives (NRs) from the U.S., UK, CA, and AS reviewed the current and proposed programs of each of the Technical Panels and Action Groups, and recommended modifications to the programs where appropriate. In general, the NRs were pleased with the quadrilateral collaboration and encouraged the members to continue to identify areas for cooperation.

NATO PG.31

Dr. Joseph DeFrank, Environmental Technology, chaired the eleventh meeting of NATO Project Group 31 (PG.31) which deals with the development of "Non-Corrosive, Biotechnology-Based Decontaminants for CBW Agents," at NATO Headquarters, Brussels, Belgium, in May. PG.31 consists of five member nations: France, Germany, Italy, United Kingdom, and United States. Turkey, which has requested membership in PG.31 and Belgium, as an observer, also attended. In addition, a representative of NATO SHAPE (Supreme Headquarters Allied Programs in Europe) attended the meeting. After receiving a briefing on their programs that could benefit the group, Turkey was voted in as a member of PG.31. Tentative plans for holding an International Workshop on "Applications of Enzymes in Chemical and Biological Defense" were discussed. The Workshop would deal with both medical and non-medical issues and include areas such as Detection, Protection, Decontamination,

Prophylaxis and Treatment. The proposed date for the Workshop is in May 2001, in Orlando, Florida, immediately before or after the Annual Meeting of the American Society for Microbiology (20-24 May 01). A short PG.31 meeting (13th) will be held immediately after the Workshop. Initially, sponsors are being sought from various U.S. agencies (DTRA, DARPA, ARO/ARL, MRICD, WRAIR, and ECBC). In addition, NATO support of the meeting as an Advanced Research Workshop or Advanced Study Institute will be pursued. The twelfth meeting of PG.31 will be held at DERA, CBD Porton Down, UK, on 14-15 Sep 00. This meeting will include agent trials of enzyme decon formulations that will be carried out just prior to the meeting. Italy has offered to host the fourteenth meeting of PG.31 in Rome during Sep 01.

CBR MOU

The semi-annual meeting of the program officers (POs) and requirements officers (ROs) under the U.S./UK/CA Memorandum of Understanding on CB Defense was held at Porton Down, UK, in Mar. The POs/ROs reviewed the current tripartite collaborative efforts, including six international task forces and seven working groups. Key new efforts include: (a) the formation of a working group to identify collaborative opportunities for biological detection equipment, (b) the formation of an orthopox working group to maintain contact in smallpox vaccine development, (c) the formation of a working group on vaccine acquisition under the Medical Countermeasures Coordinating Team. In addition, a side meeting with representatives from the UK Smoke and Obscurants Program (Ft. Halstead) resulted in a commitment to seek cooperation and collaboration in multi-spectral smokes.

Bilateral Agreements

France

In April, Mrs. Susan Luckan participated in the U.S./France (FR) Staff Talks hosted by the FR Minister of Defense in Paris. In the past, the Staff Talks focused on nuclear disarmament. This year, at the request of the FR Ministry of Defense, biological defense issues were included on the

agenda. FR provided a draft MOU on BW Defense for consideration by the U.S. The Office of the Assistant Secretary of Defense is recommending that U.S./FR develop terms of reference for a Joint Venture Oversight Group at their level. Further, they are recommending that we establish Working Groups under the Oversight Group to address CB defense policy, operations and technology (both non-medical and medical). Mrs. Luckan is coordinating the effort for the joint CB Defense technology initiatives with FR.

Czech Republic

Dr. George Famini provided a briefing on SBCCOM, with a focus on CB defense, to Mr. Tomas, Deputy Minister of Defense for the Czech Republic in March. The meeting was also attended by Ms. Chel Schweizer (DUSA(IA), LTC Jaroslav Kosa (CZ Embassy), and Ms. Susan Luckan (ECBC). Mr. Tomas expressed interest in establishing cooperative and collaborative efforts in several areas. He continued to indicate that the CZ government is interested in a collaborative agreement in CB defense, despite the continued delays in implementing DEA 1567 (Chemical Agent Detection and Monitoring). In addition, Mr. Tomas indicated that the Czech Republic has some research and development programs that overlap with some of the Natick programs, mainly in the clothing and protection area.

Poland

Dr. George Famini, LTC Bill Welch, and Ms. Teresa Resetar-Racine visited Military Institute of Chemistry and Radiometry in Warsaw, Poland, in April to discuss the possibility of collaboration in the research and development of smokes and obscurants. Ms. Ewa Daniluk and Lt. Grzegorz Nyszko provided detailed overviews of the Polish smoke and obscurants program. Of particular interest to the U.S. tech base and development programs are the Polish efforts using RP and helicopter-based visible smoke systems. A draft information exchange annex is being prepared that addresses the following areas: new materials research and development, instrumentation and test procedures, mathematical models, and environmental and toxicological concerns of smoke and obscurants.

Visits

In March:

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

In April:

LTC Marjan Tusak and SGM Ales Miklavcic of the Slovenian Army visited under the EUCOM Mil-to-Mil program. This represented the first such visit by representatives of the Slovenian military to the Edgewood Center. The Slovenian Army is establishing both an NBC training school and a CB defense research and development facility. Their purpose in visiting ECBC was to begin to determine what is needed to properly set up an R&D facility.

In May:

Group Captain Laurence Barnes, the Director for Equipment Capabilities (NBC) for the UK Ministry of Defence visited. He was accompanied by LTC Ian Harris, the UK CBR MOU Requirements Officer and Dr. Richard Scott, the Acting Director of Porton Down. Grp Cpt Barnes was very interested in enhancing U.S./UK cooperation under the MOU, and extending that cooperation to cooperative development of CB defense equipment.

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.

Ongoing During 2000:

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.

Miscellaneous

Dr. George Famini visited Natick to meet with key personnel involved in international programs. The purpose of the visit was to develop a strategy to incorporate more of Natick's mission areas in the international arena. A key result of the meeting was the realization that Natick has a tremendous potential for participating in the foreign comparative testing program.

POCs: Dr. George R. Famini, (SBCCOM RDA), Commercial (410) 436-2552/5376, DSN 584-2552/5376, email george.famini@apea.army.mil; Susan Luckan (ECBC), Commercial (410) 436-5252, DSN 584-5252, email susan.luckan@apea.army.mil; and Thomas Tassinari (NSC), Commercial (508) 233-4218, DSN 256-4218, email thomas.tassinari@natick.army.mil



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

SECRETARIAL AND CLERICAL APPRECIATION BREAKFAST

On April 19, 2000, the U.S. Army Soldier and Biological Chemical Command sponsored their annual *Secretarial and Clerical Appreciation Breakfast* at the Richlin Ballroom in Edgewood, Maryland. This breakfast has become a delightful way to honor our support staff and is an anticipated event at Edgewood coinciding with the National Secretaries' Association's observance.

Secretaries' Week has been observed annually the last full week in April since its inception in 1952. Secretaries' Week is sponsored by the National Secretaries' Association to remind secretaries of their responsibilities to their profession and to bring recognition to secretaries for their vital role in business, industry, education, government, and the professions.

Mr. Fred Brewington opened the event and introduced SBCCOM's Commanding General, MG John C. Doesburg, who gave the welcoming remarks. Ms. Theresa M. Lewis offered the invocation, which was followed by a delicious buffet breakfast.

The guest speaker was Ms. Virginia D. Jacobs, President of Visual-Vocal Dynamics,

Inc and her topic was "First Impressions." Ms. Jacobs, who is an energetic motivational speaker, makes it easy for her audience to become active participants in her presentation. She made us take a closer look at our "Professional Image" and how "Feeling Good on the Inside" can lead to "Looking Good on the Outside!"

The SBCCOM Federal Women's Program committee arranges for this event. Committee members who made this year another memorable event and deserve special recognition are:

Ms. Patricia Belcher
Ms. Emily Fowler
Ms. Celeste Fuyertes
Ms. Mary Hagy
Ms. Karen Kennedy
Ms. Barbara Knapp
Ms. Pamela Lamb
Ms. Theresa Lewis
Ms. Helen Mearns
Ms. Phyllis Ostrom
Ms. Mary Ann Ricketts

POC: Ms. Joanne Coale, Edgewood CB Center, Commercial (410) 436-5385, DSN 5 8 4 - 5 3 8 5 , o r e m a i l : joanne.coale@sbccom.apgea.army.mil



PEOPLE IN THE NEWS

FY99 AMC VALUE ENGINEERING AWARD

Intellitec, ICAM contractor, was selected as a contractor recipient of the **FY99 AMC Value Engineering Award**. The multi-million dollar savings on the ICAM contract led to their selection. Jerry Taulbee, our contract specialist at the time, was selected as the **VE Procurement Personnel Award** winner for both AMC and DoD.

TACOM EAGLE AWARD PRESENTATION

The C2A1 Canister Integrated Product Team, comprising of members from SBCCOM-EA, SBCCOM IMMC-RI, TACOM-RI, TACOM-ARDEC, and a contractor were the honored recipients of the prestigious **Eagle Award** presented by TACOM Deputy for Systems Acquisition and Life Cycle Management, on May 25th at the Focus Day of the TACOM-RI Acquisition and Logistics Reform Week. Mr. Steven Kaminsky of the M40 Mask Team, PM-NBC Defense Systems, was as a member of the C2A1 Canister IPT. The Eagle Award was given to the C2A1 IPT in recognition of their use of acquisition reform initiatives, which lead to the award of a 5-year C2A1 requirements contract. Initiatives included the use of Best Value criteria, long-term contracting, oral presentations, a performance specification, solicitation templating, and market research.

1999 DEFENSE STANDARDIZATION PROGRAM AWARD

In May, Natick Soldier Center was officially notified that three members of the Aerial Delivery Engineering Support Team were selected as winners of the **1999 Defense Standardization Program (DSP) National Honorary Award**. The award was bestowed for their efforts and commitment to Acquisition Reform and partnering with the parachute industry. Through their efforts over 100 Military Specifications/Standards were canceled or converted to Non-Government Standards with concomitant potential savings of up to \$1 M. The award ceremony will be held on July 7th at the Pentagon Press Room, where Mr. Dave Oliver, Principal Deputy Under Secretary of Defense for Acquisition, Technology and Logistics will present the award.

BALTIMORE FEDERAL EXECUTIVE BOARD EXCELLENCE IN FEDERAL CAREER AWARDS

The following SBCCOM people were FEB winners:

GOLD: Deanna S. Gross, Outstanding Professional, Administrative Management and Specialist. Ms. Gross was commented for her “outstanding contributions and crucial role in planning our nation’s nuclear, biological and chemical defense program.” She is responsible for preparing the program’s \$1 billion budget, assessing trends and recommending mid-course corrections to meet technical challenges and schedules. Her accomplishments include developing a “radically new tool” that is changing DoD database management, and preparing essential documentation to protect America’s service members.

SILVER:

R. Andrew Blankenbiller, Outstanding Professional, Technical, Scientific and Program Support. Mr. Blankenbiller was praised for his contributions and crucial role in developing the nation's 15-year nuclear, biological and chemical defense program plan for technology, development and production. The program involves thousands of DoD scientists, engineers and managers. He provides a coherent plan that allows leadership to work confidently and effectively with Congress.

Katherine Carol Baker, Equal Opportunity Service. During a 120-day detail in the EEO Office, Ms. Baker was appointed the program manager for the first Native American Indian Program Committee at APG. She has planned numerous Native American heritage events on post, has coordinated visits to local schools, and initiated a clothing and food drive for a desolate Native American reservation.

REMSEN AWARD

The **2000 Remsen Award** was presented to Dr. Alexander Pines, the Glen Seaborg Professor of Chemistry at the University of California at Berkeley. The selection committee, chaired by ECBC's Dr. William White, selected Dr. Pines for his work on the theory and applications of nuclear magnetic resonance

ADDITIONAL RECOGNITION

Dr. Steve Christesen, of Research and Technology's Laser Standoff Detection Team, received a commendation of customer satisfaction from the Product Manager for Non-Stockpile Chemical Material for his work in evaluation and recommending several portable Ramen instrument configurations for identifying the contents of Chemical Agent Identification Sets (CAIS). The Product Manager is now considering Ramen instruments to meet the needs of a new project, the Single CAIS Access and Neutralization System. It was noted that Dr. Christesen "is a pleasure to work with, very technically competent, prepared high quality documents, and was quite responsive to scheduled and program needs."

Mr. Randall Bagrowski, a member of the Center's Detection/Decontamination Core Team, was the winner in the Technical Staff Support Award Category, at the Tier 2 Level, for the 1999 Solder Systems Center/RDA Annual Awards Program. Mr. Bagrowski was recognized for his contributions to the Riot Control Agent Neutralizer, Soldier Enhancement Program.

Mr. Mike Williamson received a written commendation for superior work on the Bio Background Data Base from the Ambient Background Characterization project manager of the WEB base repository of all existing ambient bio-background research/studies at Department of Energy at Oak Ridge. Mr. Williamson took the initiative to pull together all Edgewood Center in-house aerobiology data and created accompanying dialogue that included links to various data sets in a very creative approach. The commendation read, in part, "The Edgewood CD is very nicely done. Mr. Williamson had a very nice approach for dealing with so many disparate data types and software. I'm very fond of browser front-ends, and this approach was very clever. Please pass along my appreciation to Mr. Williamson."

Ms. Janice Nordin, M157A2 Smoke Generator System Manager, was awarded the Tier 3 Project Officer Award at the Soldier Systems Center/Research Development and Acquisition awards held in April.

On May 1st Mr. Charles R. Scharmann assumed the duties as Program Manager, Rocky Mountain Arsenal. Mr. Scharmann replaces COL Eugene H. Bishop, who has been Program Manager since May 14th, 1991. Mr. Scharmann will manage the environmental remediation and the *transition* of Rocky Mountain Arsenal to a Wildlife Refuge.

Mr. Robert F. Kinney, Director of Individual Protection Directorate, SBCCOM-Natick, was selected as a Government **Advisor to the Sub-Panel to Defense Science Board Task Force on Defense Against Biological Weapons**. Mr. William Haskell was selected as an alternate Government Advisor.

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.

DEVELOPMENTAL HANDS-ON TRAINING

The Edgewood CB Center's Experimental Fabrication Shop, Engineering Services Business Unit, held its second training session on welding techniques and considerations. Class attendees, ECBC and PM development team members, were given the opportunity to try their hand at the art of welding using various materials and methods. The purpose of the session was to provide practical training for engineers and technicians which can be applied directly to their design and development efforts. Class outline included welding techniques (steel stick rod, mig, tig, spot), cutting, metals preparation and metal types. Once again a waiting list for the next class exists.

BRING YOUR CHILD TO WORK DAY

Bring Your Child to Work day is nationally recognized on April 27th. Parents requested that SBCCOM celebrate this event after school is out for the summer. Many schools would not recognize this day as a legal excuse to be absent from school. Because SBCCOM's workforce lives in several surrounding states (Maryland, Delaware, and Pennsylvania), we will celebrate a day with our children on June 27th instead.



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 March:

Natick Soldier Center supported the **2nd Annual Special Forces Exposition** with a display and food sampling of irradiated foods. Chicken nuggets, which had been irradiation pasteurized, were presented in comparison to nonpasteurized chicken. Benefits of the use of pasteurized, shelf stable, and other irradiated items were highlighted and informational material was available to the participants. Recent U.S. Department of Agriculture approval of low-dose irradiation pasteurized red meats will make these products available to consumers and food service beginning in March 2000.

Several members of the Target Defeat Team attended the Non-Lethal Defense IV conference. Four talks were presented or co-presented by Target Defeat Team members and two others by a team contractor. The Team's presentations covered an historical look at engine and fuel defeating mechanisms, the current work being conducted on slippery materials, IR Smoke Pot and bullet trap grenade dissemination technology, recent research results in odorous substances and their perceived effectiveness, and a novel means of measuring impact velocities of blunt trauma non-lethal weapons. Of the 34 working level talks presented at the meeting, ECBC has been either directly involved or has supported the work described in at least ten of the talks.

LTC Billy Wlech, PM-Smoke/Obscurants, presented a briefing "The How, When, Where and Why of Obscuration," at the **11th Annual U.S. Army Ground Vehicle Survivability Symposium**. Mr. James Jacobs, also of PM Smoke/Obscurants, exhibited a poster on the VEESS.

Members of our Toxicology Team presented three papers at the **Society of Toxicology** meeting in Philadelphia, PA. These papers have generated much interest since they demonstrate that the concentration time for 50% lethality in rats is not constant over time. One of the papers, addressing generation and sampling, shows good concentration between the traditional solvent bubbler technique and an automated solid sorbent sampling system.

Ms. Terry Mann of the Center's CB Services Directorate presented a paper entitled, "Meeting Requirements of the National Environmental Policy Act (NEPA) for Classified Actions," at the **26th NDIA Environmental Symposium and Exhibition**. The paper, which gives specific advice on how to comply with the intent of NEPA when public notification is not possible, was well received by the audience.

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.

M. Scott DeSha, ECBC, has written a paper entitled, "Tunable Ultraviolet Lidar, which was accepted for publication and presentation in the **Chemical and Biological Sensing Conference of the SPIE 14th Annual International Symposium on Aerospace/Defense Sensing, Simulation, and Controls**. Other members of LSD Team co-authoring multiple papers for the same conference are Cynthia Swim (laser and lidar

development), Fran D'Amico, and Rich Vanderbeek (algorithm development).

Dr. Amnon Birenzvice, CB Systems Integration Team, presented an invited briefing entitled, "Chemical and Biological Defense in Cold Temperatures/Winter Weather," at the latest meeting of the **Cold Weather Military Operations Work Group** at Natick. The briefing was a collaborative effort with Dr. Louise Parker, Cold Regions Research and Engineering Laboratory, discussing problems of CB defense in cold weather.

Drs. Tevault and Kuhlman attended a workshop at **TNO Prins Maurits Laboratory in the Netherlands**. The purpose of the workshop was to begin work on updating the NATO Long Term Scientific Study on Chemical and Biological Defense. The United States is responsible for writing the respiratory protection and CB filtration portion of the chapter on protection.

Dr. Charles Wick gave an invited lecture to the **Department of Entomology and Applied Ecology at the University of Delaware** on the Integrated Virus Detection System. The Department was particularly interested in the recent papers in toxicology methods that demonstrated the ability to separate viruses through filters. They were also please to see a single method for concentrating and counting viruses from various water samples since many of their studies in ecology include wet areas.

The Edgewood Center's Aerosol Sciences Team participated in the kick-off bidder's conference for the **Sensor Integration and Modeling for Biological Agent Detection (SIMBAD)** program being initiated by DARPA. DARPA personnel explained the motivation and goals of their solicitation and allowed people interested in working on the project to advertise their capabilities to each other, not DARPA, for the purpose of forming teams that would bid on the solicitation. Each company presented itself either as a primary contractor, or integrator, that wanted to lead the effort, or as a more specialized team member expert responsibility in some sub-effort. We offered our services as a team member, capable of handling the aerosol aspects of an agent detector and validating the final prototype with well-characterized challenges.

AMC selected two issue papers contributed by the ECBC Environmental Quality Office for presentation by MG Doesburg at the DA-wide **Senior Environmental Leadership Conference (SELC)**. One paper addresses the need to provide Program, Project, and Product Managers with an opportunity to review. In addition, they need to have better access to legal interpretation of new and proposed environmental laws and regulations so that their potential impacts to weapon system development, manufacture, and maintenance can be assessed before these new laws and regulations are implemented. This will provide the Army materiel developer an opportunity to determine the most cost effective approach to take; i.e., compliance versus P2 technologies, and give the materiel developer the time needed to program required funding for test and evaluation, as well as implementation of P2 strategies. The second paper addresses defining the responsibilities of the material developer and gaining installations concerning the development of site-specific environmental analyses.

Dr. Andrew Holder, Chemistry Department, University of Missouri at Kansas City, gave a colloquium at ECBC on the use of semiempirical quantum mechanical methods for evaluating the potential utility of candidate polymers. His studies accurately predicted which monomers would react at moderate temperatures to form the desired polymers. A quantitative structure activity relation (QSAR) was developed between five theoretical descriptors and the coefficient of expansion of the polymer. This formula will permit selection of monomers that will neither expand nor contract as they polymerize and, therefore, will not fracture nor pull away from the surface. Dr. Holder concluded his presentation with a discussion of new advances in AMPAC, one of the principal programs used by computational chemists at Edgewood.

Dr. John White, Modeling and Simulation Team Leader, was invited by Dr. Ruth Willis to participate in the **Human Performance Modeling Workshop** being hosted by the **Defense Modeling and Simulation Office**.

The purpose of the workshop is to define the key human performance modeling requirements needed by various agencies in their analytical missions. Human performance is key to many CB related analysis, and Dr. White's participation will ensure that CB requirements are considered.

Dr. Ivy Sindoni, Aerosol Sciences Team, presented a paper, "Novel Inversion Method for Landmine Imaging and Detection" at the session on *Detection and Remediation Technologies for Mines and Minelike Targets* at the April 2000 **AeroSense Conference**. Session chairs included Regina E. Dugan and Thomas W. Altshuler, both of DARPA. The paper prompted considerable discussion among U.S. and foreign representatives including Steven J. Lowell, mission director, International Humanitarian Landmine Removal Project. Dr. Altshuler invited Dr. Sindoni to participate in an evening planing session and various investigators commented that his theory held promise to explain, and interpret, signals they had previously been unable to interpret. Investigators from Georgia Tech and the University of Michigan offered to send their data to Dr. Sindoni for analysis.

In May:

The Joint Service Materiel Group Executive Office sponsored the **Decon 2000 Conference**. Over 320 people participated in the conference, breakout sessions, and side meetings. Dugway Proving Ground hosted a "Demonstration Day" where attendees had an opportunity to see decontamination equipment operated and to tour Dugway Proving Ground's world-class facilities.

Ms. Ann Butrow, SBCCOM/ECBC, attended the semi-annual meeting of the **American Society for Testing and Materials (ASTM) Committee E37 on the Thermal Measurements**. She also attended the **Symposium on Materials Characterization by Dynamic and Modulated Thermal Analytical Techniques** sponsored by Committee E37. Ms. Butrow is Second Vice-Chairperson of Committee E37. Work on this Committee supports an on-going Air Force Project.

Dr. Robert Mioduszewski and Mr. William Muse of the Toxicology Team presented two papers at the **CWD 2000 International Demil Conference**. The papers entitled, "Estimating the Probability of Sarin Vapor Toxicity in Rats as a Function of Exposure

Concentration and Duration" and "Generation, Sampling and Analysis of GB Vapor for Inhalation Toxicology Studies," will be published in the Proceedings of the Conference. Sampling methods included the traditional solvent bubbler technique, as well as the development of an automated solid sorbent sampling system. The inhalation toxicity results of these studies have demonstrated that CT for 50 percent lethality was not constant over time. This is one of several significant findings.

Mr. Douglas R. Sommerville, ECBC, presented two talks to the chem/bio decontamination community on various aspects of the ECBC's Low Level Operational Toxicology Program: "ECBC Low Level Operational Toxicology Program--Potential Modeling Implications," and "A Novel Idea on How to Define Threshold Lethality for Nerve Agent Inhalation Toxicity."

Dr. Jana Kesavan, Aerosol Sciences Team, presented a paper entitled, "The Use of Fluorescein in Aerosol Studies" at the premier **Occupational and Environmental Health and Safety Conference & Exposition**. This paper presented many experiments conducted to validate the procedure used at ECBC in the removal of fluorescein, that was tagged to aerosol particles, from filter samples. This powerful and highly efficient method has greatly improved the quantitative characterization of aerosol collectors in bio defense systems.

SBCCOM had a display at the **U.S. Army Armor Conference**, which included highlights from PM-Soldier, PM-Smoke/Obscurants, PM-NBC Defense, MOUT ACTD and DARPA SBCCOM. PM-NBC Defense Systems also exhibited at **Special Operations Week**.

In June:

Ms. Karen Quinn-Doggett attended the **Army Antiterrorism/Force Protection Conference** at the National Guard Bureau in Alexandria, VA. Ms. Quinn-Doggett gave a presentation on the NBC Installation

Protection program. The WMD area was identified as one of the “big four” deficiencies that have been noted; specifically a lack of planning, lack of annual exercises and lack of partnering with the local, state and federal agencies. Although there was interest in the NBC Installation Protection program, there is a general lack of funding in the entire Force Protection area.

SBCCOM-Natick transported an exhibit to the **Infantry Conference** at Fort Benning. PM–Smoke had an outside display; PM–NBC Defense Systems had an inside display, and the FOX vehicle was located outside.

SBCCOM-Edgewood transported an exhibit to the **Worldwide Chemical Conference** at Fort Leonard Wood. Many of SBCCOM’s business areas were

represented on the inside exhibit as well as PM NBC Defense Systems, PM Smoke, TEU, and Operations Enterprise taking advantage of outside exhibit space.

Upcoming Symposium

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.

SBCCOM and the Department of Justice will cosponsor a conference, tentatively titled, **WMD Training for Emergency Responders in the New Millennium**. It is planned for April 2001 in Anniston, AL.





Books, Journals, and Magazine Articles

“Calibration Transfer in the Automated Detection of Acetone by Passive Fourier Transform Infrared Spectrometry” by F.W. Koehler, Sandia National Labs; G.W. Small, Ohio University; and R.J. Combs, R.B. Knapp, and R.T. Kroutil, ECBC, was accepted for publication in the *J. Applied Spectroscopy*. This paper describes the use of multivariate statistical modeling with digital filtering and piecewise linear discriminant analysis applied to short interferogram segments for elimination of both background scene and internal spectrometer self emission radiances. Results of this study demonstrate that classification percentages averaged across all evaluated interferogram segments can be improved from $76.2 \pm 6.4\%$ to $95.1 \pm 2.2\%$. This result has positive implications for our passive standoff detection programs.

“Reactions of VX, GD, and HD with Nanosize CaO. Autocatalytic Dehydrohalogenation of HD” by George W. Wagner, ECBC, Olga B. Koper, Erik Lucas, and Shawn Decker, Nantek, Inc., and Kenneth J. Klabunde, (Kansas State University and Nantek, Inc., was accepted for publication in *J. Phys. Chem. B*. The work describes the room-temperature reactions of VX, GD, and HD with nanosize CaO as studied by solid state MAS NMR. VX and GD hydrolyze to yield surface bound phosphonates. The toxic VX-hydrolysis product EA-2192 is not observed. These are promising results in the search for state-of-the-art-materials for use as a solid-phase decontamination system.

“Unsupervised Hyperspectral Image Analysis with Projection Pursuit” by A. Ifarraguerri, ECBC, and C-I Chang, University of Maryland, Baltimore County, was accepted for publication in the **IEEE Transactions of Geoscience and Remote Sensing**. Projection Pursuit is a technique that aids in the visual analysis of high-dimensional data, such as that produced by an imaging spectrometer, by computing linear projections that are interesting in some sense.

Ms. Cynthia Swim, Laser Standoff Detection Team, was asked by a SPIE editor to contribute to an overview article entitled “Near to Far: Chemical Sensors Take on New Importance.” Ms. Swim provided synopses of several Edgewood CB Center papers that were presented at the **AeroSense 2000 Conference** in April as well as general technical information regarding laser standoff detection at the Center. The article appeared in the April issue of *OE Reports*, which coincided with AeroSense 2000.

“Recombinant Antibodies: A New Reagent for Biological Agent Detection” by Peter Emanuel, ECBC, Jessica Dang, Geo-Centers, Inc., Joan S. Gebhardt and Jennifer Aldrich, Naval Medical Research Center, Eric A.E. Garber, USDA-ARS Biosciences Research Laboratory, Henrietta Kulaga, Science and Technology Corporation, Peter Stopa and James J. Valdes, ECBC, and Amanda Dion-Schultz, (Naval Medical Research Center, was accepted for publication in *Biosens. Bioelectron.*

CHANGE TO THE PUBLICATION NUMBERING SYSTEM

The U.S. Army is changing over to the new “Army Hierarchy and Numbering System” starting in June. All Army Doctrine Centers at each military post in CONUS and OCONUS were given a chart of the new Army Hierarchy and Numbering System as well as key personnel attending the Warfighters Conference. Listed below are the new FM/TC numbers for our Chemical Manuals in accordance with the joint numbering system.. The TRADOC Doctrine office will have this new system chart posted to their TRADOC Web Site (<http://www-tradoc.army.mil>) in 45-60 days.

Old FM Number	New FM Number	Title	Date
FM 3-100	FM 3-11	Chemical Operations Principles and Fundamentals	8 May 1996
FM 3-100-1	FM 3-11.101	NBC Defense, Chemical Warfare, Smoke and Flame Operations	
FM 3-3	FM 3-11.3	Chemical and Biological Contamination Avoidance	16 November 1992
FM 3-4	FM 3-11.4	NBC Protection	29 May 1992
FM 3-4-1	FM 3-11.34	Fixed Site Protection	16 August 1989
FM 3-5	FM 3-11.5	NBC Decontamination	17 November 1993
FM 3-6	FM 3-11.6	Field Behavior of NBC Agents (Including Smoke and Incendiaries)	3 November 1986
FM 3-7	FM 3-11.7	NBC Field Handbook	29 September 1994
FM 3-9	FM 3-11.9	Potential Military Chemical/Biological Agents and Compounds	12 December 1990
FM 3-11	FM 3-11.11	Flame, Riot Control Agent, and Herbicide Operations	19 August 1996
FM 3-14	FM 3-11.14	Nuclear, Biological and Chemical (NBC) Vulnerability Analysis	12 November 1997

FM 3-18	FM 3-11.18	Special NBC Reconnaissance (LB Team)	7 May 1993 (Restricted Distribution)
FM 3-19	FM 3-11.19	NBC Reconnaissance	19 November 1993
FM 3-21	FM 3-11.21.	Chemical Accident Contamination Control	23 February 1978
FM 3-101	FM 3-11.100	Chemical Staffs and Units	19 November 1993
FM 3-101-1	FM 3-11.101	Smoke Squad/Platoon Operations, Tactics, Techniques, and Procedures	20 September 1994
FM 3-101-4	FM 3-11.112	Biological Detection Platoon Operations, Tactics, Techniques, and Procedures	9 June 1997
FM 3-101-6	FM 3-11.86	Biological Defense Operations, Corps/Company Tactics, Techniques, and Procedures	19 March 1999
FM 3-8	TC 3-11.8	Chemical Reference Handbook	

TECHNICAL REPORTS

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

<i>Report No.</i>	<i>Title</i>	<i>Author(s)</i>
ECBC-CR-001	Rapid Detection of Microorganisms Using Flow Cytometry, October 1999, UNCLASSIFIED - limited.	S.A. Sincock P.E. Anderson J.A. Tramo, III
ECBC-CR-002	Evaluation of Sensitive Membrane Antigen Rapid Test (SMART), Tickets for the Detection of Biological Materials, February 2000, UNCLASSIFIED - limited.	S.A. Sincock C.R. Johnson
ECBC-CR-020	Analysis of the Effectiveness of XM56 IR/MMW Obscurants Using the Combined Arms and Support Task Force Evaluation Model (CASTFOREM), December 1999, UNCLASSIFIED - limited.	B. Berry
ECBC-CR-027	Biological Warfare Improved Response Program, Response Decision Tree Workshop, 29-30 April 1999, May 2000, UNCLASSIFIED - public release.	P.H. Perkins
ECBC-CR-029	Methods for Improving Detection and Identification of Microorganisms Using Flow Cytometry, June 2000, UNCLASSIFIED - public release.	S.A. Sincock P.E. Anderson J.A. Traino III
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