Chemical and Biological Defense
CBIAC Newsletter
Information Analysis Center
Spring 2001
Volume 2 Number 2
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RestOps ACTD Completes Baseline Exercise

By Christopher C. Harmel, Defense Group Inc.

The 16th February 2001 marked the end of a week-long exercise held at Osan Air Base, Republic of Korea, during which airmen and soldiers were challenged under real-world conditions to respond to, and operate in, a chemical and biological 'contaminated' environment. This Baseline Exercise was the first in a series of exercises/demonstrations conducted as part of the Restoration of Operations (RestOps) Advanced Concept Technology Demonstration (ACTD).

The RestOps ACTD is a five-year program that seeks to enhance the warfighter's ability to mitigate the effects of a chemical and biological (CB) weapons attack and quickly restore operational capability at fixed installations. The ACTD is co-sponsored by the Defense Threat Reduction Agency (DTRA), the ACTD executive agent, and U.S. Pacific Command (PACOM), the user sponsor. DTRA has designated its CB Defense Directorate as the program's technical manager while PACOM has designated Pacific Air Forces (PACAF) as the operational manager.

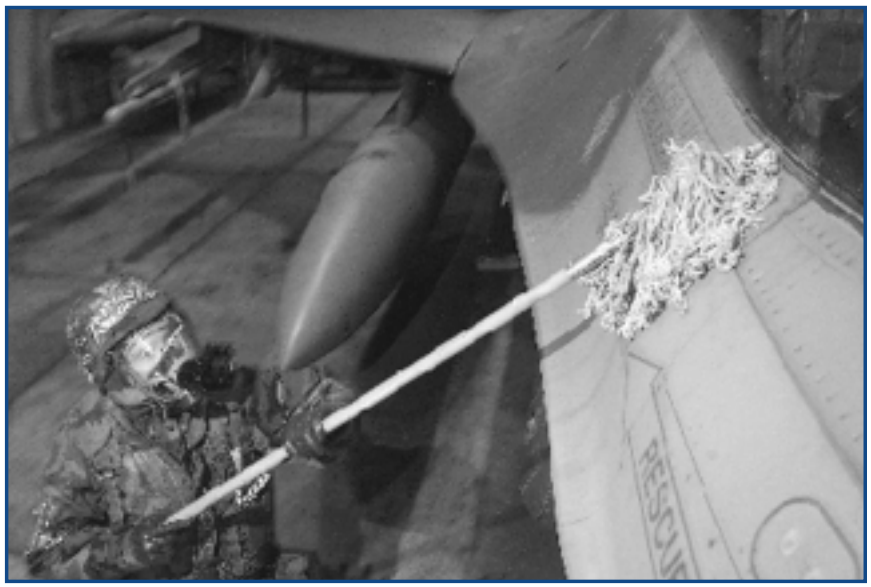

Figure 1. An F-16 from the 51st Fighter Wing being decontaminated by Osan airman in MOPP-4

The objective of the five-year program is to demonstrate those actions that will contribute to protecting against and responding to a CB attack in order to restore operating tempo in mission execution and to support combat operations at fixed sites. More specifically, RestOps seeks to:

- Identify effective means of pre-attack protection of personnel and critical equipment while maintaining operational agility;
- Identify CB collection, detection, identification and warning that is achievable to reduce vulnerabilities;
- Identify expedient methods of post-attack decontamination of personnel and personal equipment;
- Provide for enhanced decontamination of critical equipment and facilities necessary to restore and sustain operations;
- Provide enhanced ability to determine the extent and location of contamination; and
- Provide for improved post-attack medical treatment to exposed personnel.

The Technical Approach

RestOps is concurrently pursuing technical and operational approaches in order to achieve its objectives. From a technology perspective, RestOps began by canvassing domestic and international programs in both commercial and government sectors for applicable technologies. After an initial technology review, approximately 60 mature technologies in the areas of detection, protection, decontamination and medical treatment and prophylaxis were tested and evaluated in a combination of field, laboratory and chamber environments. A subsequent technology review, report, and recommendation process resulted in 29 of those technologies being downselected for further assessment.

The selected technologies will be integrated into a series of Limited Utility Assessments (LUAs) - some have already been completed-during which users will have the opportunity to

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Chemical and Biological Defense
CBIAC
Information Analysis Center

The **Chemical Warfare/Chemical and Biological Defense Information Analysis Center (CBIAC)** is a Department of Defense (DoD-sponsored Information Analysis Center (IAC) operated by Battelle Memorial Institute and administered by the Defense Information Systems Agency (DISA), Defense Technical Information Center (DTIC) under the DoD IAC Program Office (Contract No. SPO700-00-D-3180). The CBIAC is supported by Horne Engineering Services, Inc., Innovative Emergency Management, Inc., MTS Technologies, Inc., QuickSilver Analytics, Inc., and SciTech, Inc. The CBIAC **Contracting Officer's Technical Representative (COTR) is Mr. Joseph D. Williams**.

CDR USA SBCCOM
Edgewood Chemical Biological Center
ATTN: AMSSB-RRT-OM (Joe Williams E3330)
5183 Blackhawk Road
Aberdeen Proving Ground, MD 21010-5424
Joseph.Williams@sbccom.apgea.army.mil

U.S Government agencies and private industry under contract to the U.S. Government can contact the CBIAC for information products and services. CBIAC services also extend to all state and local governments and the first responder community to include local emergency planners, firefighters, medics and law enforcement personnel.

The CBIAC is located in Building E3330, Room 150 Aberdeen Proving Ground - Edgewood Area, Maryland 21010. For further information or assistance, visit or contact the CBIAC.

CBIAC
Aberdeen Proving Ground - Edgewood Area
P.O. Box 196
Gunpowder, MD 21010-0196
Tel: (410) 676-9030
Fax: (410) 676-9703
E-Mail: cbiac@battelle.org
URL: http://www.cbiac.apgea.army.mil/

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mat and posted in Portable Document Format (PDF) on the CBIAC Homepage.

The CBIAC reserves the right to reject or edit submissions. For

February 1st; Summer (Third Quarter) - May 1st; Fall (Fourth Quarter) - August 1st.

All paid advertisements are subject to the review and approval of the CBIAC COTR prior to publication. The appearance of an advertisement or article in the *CBIAC Newsletter* does not constitute endorsement by the DoD or the CBIAC.

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watersm@battelle.org

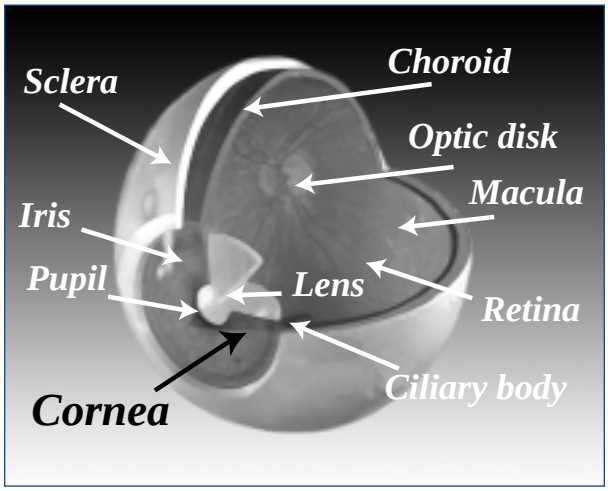
Validation Study – a Non-Clinical Trial

By Dr. Cheng J. Cao, Ms. Karen Heroux and Dr. James J. Valdes

SBCCOM's Molecular Engineering Team was selected by Gillette Company to be one of three laboratories conducting a toxicology validation study of Human Corneal Transepithelial Permeability (TEP) assay, an in-vitro assay which can be used to test chemicals for ocular toxicity. A validation study is a major step in the process of gaining FDA approval for a newly developed assay and this would be the first approved in-vitro, ocular assay.

The ability to evaluate the potential of a chemical or formulation to cause eye irritation or injury is of great importance in the safety testing of consumer products and other reagents. The Draize rabbit eye irritation test (Draize et al;, 1944) has been the long-standing and widely used standard source for eye irritation or injury data. In support of alternative tests development, there have been numerous major programs by industry and government which evaluated diverse test systems for their ability to predict the Draize test data. These objectives address the needs for mechanism-based and human cell-based tests for supporting in vitro toxicology and human risk assessment. An in-vitro model based on human ocular tissue is most likely to be useful for this purpose since it may approximate the range of species-specific cellular targets, chemical metabolic profiles, and responses to toxic injury that occur in the intact target organ.

The human cell line 10.014 pRSV-T used in Gillette's model was derived from the transfection of primary human corneal epithelial cells (HCE) obtained from a single donor cornea . A significant feature of this cell line, termed HCE-T, is its extended life span in culture, which has established its utility in supporting a reproducible in-vitro model. The corneal epithelium is an appropriate structure for the development of an in-vitro alternative test for assessing ocular irritancy because this tissue provides a primary functional barrier to toxicant penetration of the eye. Rather than the traditional monolayer culture, the HCE-T model presents a three-dimensional structure of HCE-T cells grown on a collagen membrane to provide a species- and tissue-specific equivalent of the human corneal surface in vivo. In this model, HCE-T cells stratify into four to six cell layers, similar to the corneal epithelium in the intact eye. Barrier function established by the HCE-T model can be determined by measuring transepithelial permeability to sodium fluorescein (TEP) and transepithelial electrical resistance (TER). A number of chemicals have been examined for their effects on the barrier function using this model. The results indicate that TEP and TER assays are useful endpoints for the evaluation of the chemically–induced damage to human corneal tissues. In this validation project, we completed phase II and III studies by conducting TEP and TER assays for 35 chemicals. The HCE-T model provides an alternative to experimental use of animals or humans for risk assessment of chemicals, toxins and drugs. Gillette's choice of SBCCOM to conduct this study is recognition by a Fortune 50 company of SBCCOM's technical excellence. As one of only three laboratories in the world certified to perform the validation study, SBCCOM is uniquely positioned to expand its role in in vitro toxicity testing, enhancing revenue and reducing animal use.



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james.valdes@SBCCOM.APGEA.ARMY.MIL

About the authors:

DR. JAMES J. VALDES is the Chief Scientist, Biological Sciences and Scientific Advisor for Biotechnology, ECBC, Soldier and Biological Chemical Command. He holds a Ph.D. in neuroscience from Texas Christian University and has performed postdoctoral research in neurotoxicology at the Johns Hopkins Medical Institutions. He is the author of more than 80 peer-reviewed publications.

DR. CHENG J. CAO is a Senior Scientist at GEO-Centers,Inc. supporting the company's programs with ECBC's Molecular Engineering Team. She holds a Ph.D. in toxicology from Beijing Medical University and has performed postdoctoral research under grants from NIH at the University of Maryland School of Medicine. She has worked extensively in in-vivo and in-vitro pharmacology/toxicology and has a number of peer-reviewed publications.

KAREN S. HEROUX is a Scientist at GEO-Centers, Inc. supporting the company's programs with ECBC's Molecular Engineering Team. She holds a B.S. in biology from Towson University and is currently enrolled in a Masters program at Hood College in Frederick, MD. She has extensive experience in microbiology and cell cultures.

CUM SCIENTIA DEFENDIMUS

The Gillette Company

CONTRACT AWARDS • *By Mary Frances Tracy*

CBD Contracts:

Low Rate Initial Production Joint Biological Point Detection Systems

Advanced Technical Products, Inc., Intellitec Division
2000 Brunswick Lane
Deland, FL 32724
$13,267,553. October 18, 2000
By Aberdeen Contracting Division of the Robert Morris Acquisition Center, Aberdeen Proving Ground, MD

Production and Spare Parts of 45 Smoke Generating Systems (M56)

General Dynamics Robotic Systems
Westminster, MD
$12,114,066. December 21, 2000
By U.S. Army Materiel Command Acquisition Center, Aberdeen Proving Ground, MD

Development and Prototyping of an Individual Chemical Warfare Agent Detector Using Semiconducting Metal Oxide Chemiresistive and Polymer - Coated Surface Acoustic Wave Sensor Technologies

Sensor Research and Development Corporation
17 Godfrey Drive
Ornono, ME
$8,513,403. January 29, 2001
By Office of Naval Research, Arlington, VA

Other Contracts of Interest:

Interim Armored Vehicles to Equip an Interim Brigade Combat Team

GM GDLS Defense Group
Limited Liability Company
Sterling Heights, MI
$3,998,349,372. November 16, 2000
By U.S. Army Tank-Automotive & Armaments Command, Warren, MI

Task Order Contract to Provide a Capability for Both Civilian and Military Agencies for Hazardous, Toxic and Radioactive Waste Remediation Project in Support of Local, State and Federal Governments

BEM Systems Inc
Chatham, NJ
$6,000,000. December 5, 2000
By U.S. Army Corps of Engineers, Mobile, AL

Support for the Development of a Training Course for Medical Practitioners

Advanced Biosystems, Inc., Subsidiary of Hadron, Inc.
Alexandria, VA
December 7, 2000
By University of Alabama, Birmingham, AL

Preplaced Remedial Action Contract, Environmental Hazardous, Toxic and Radioactive Waste Remediation, Both Military and Civilian Agencies

Sevenson Environmental
Niagara Falls, NY
$300,000,000. December 11, 2000
By U.S. Corps of Engineers, Kansas City, MO

Long Term Response Action Operation and Monitoring in Environmental Protection Agency Region II and the Corps of Engineers Northwest Division

URS Group Inc.
Bethesda, MD
$500,000 (Part of $12,500,000). January 25, 2001
By U.S. Corps of Engineers, Kansas City, MO

Sequence the Genomes of Pox Viruses and Establish an Internet-Based Clearinghouse on Viruses

St. Louis University
St. Louis, MO
$1,800,000. January 19, 2001
By National Institute of Allergy and Infectious Diseases, Bethesda, MD

Chemical-Biological Mask Facepiece Lens

Scott Aviation,
Monroe Plant
309 W. Crowell Street
Monroe, NC
$25,642. January 29, 2001
By Defense Personnel Support Center, Philadelphia, PA

Provide Face Pieces to the MCU-2 A/P Gas Mask

(Modification to a Firm-Fixed-Price Contract)
Mine Safety Appliances Co.
Murrysville, PA
$9,621,700. February 2, 2001
By Warner Robins Air Logistics Center, Robins AFB, GA

Analysis and Interpretation of Real-Time Multi-Parameter Biological Data

Geo-Centers, Inc.
7 Wells Avenue
Newton Centre, MA
$99,759. February 5, 2001
By U.S. Army Medical Research Acquisition Activity, Ft. Detrick, MD

Chemical-Biological Mask

Mine Safety Appliances Co.
Defense Products Dept.
PO Box 428
Pittsburgh, PA
$751,357. February 2, 2001
By WR-ALC/PKXOA, Robbins Air Force Base, GA

Maintenance and Support of the M93 Fox Nuclear Biological Chemical Tactical Vehicle

General Dynamics Land Systems Inc.
Sterling Heights, MI
$8,238,819. February 8, 2001
By U.S. Army Tank-Automotive & Armaments Command, Rock Island, IL

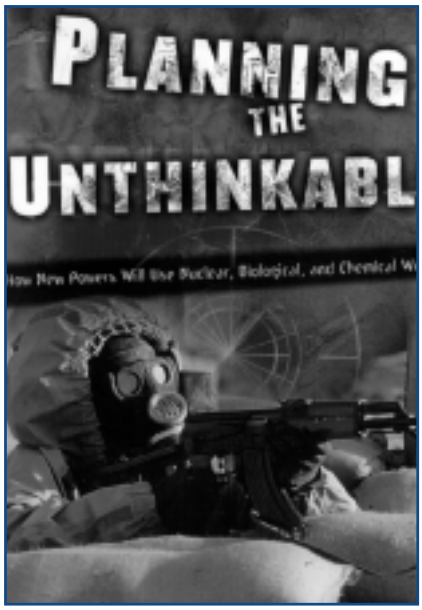
NEW CBIAC INFORMATION RESOURCES • *By Richard M. Gilman*

Books

Lavoy, Petter R., Scott D. Sagan and James D. Wirtz. **Planning The Unthinkable: How New Powers Will Use Nuclear, Biological and Chemical Weapons.** Ithaca, N.Y. and London: Cornell University Press, 2000, pp. 260.

"The new century...began with a looming sense of danger. Proliferation of nuclear, chemical, and biological weapons has become a fixture on the strategic landscape. The crises of the late 1990s are warning signals of more dangerous crises brewing just over the horizon.

This book examines how new powers will use the chemical, biological, and nuclear weapons that they have developed or are trying to acquire. Many books and articles examine why states have developed nuclear, chemical, and biological weapons. This volume, however, looks toward the future, examining the evolving military doctrines and command systems of the states and non-state groups that have such weapons. It addresses how the leaders of new proliferators think about the use of this weaponry and how they ensure that the weapons will be used when, but only when, they decide they should be used."
(Introduction)

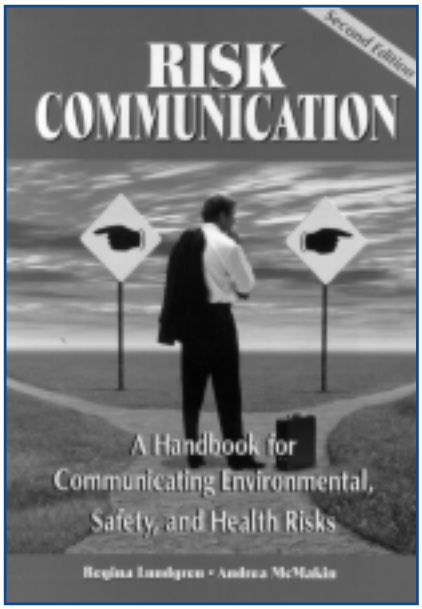


This work contains chapters on Iran, Iraq, Israel, India and Pakistan. Figures, tables and an index are included.

CB-160385
ISBN 0-8014-8704-8
Cornell University Press
Sage House
512 East State Street
Ithaca, N.Y. 14850
Phone: (607) 277-2211
Fax: (800) 688-2877
http://www.cornellpress.cornell.edu

Lungren, Regina and Andrea McMakin. **Risk Communication: A Handbook for Communicating Environmental, Safety and Health Risks.** 2nd edition. Columbus, OH: Battelle Press, 1998, pp. 329.

"As penalties for corporate and personal risks increase, communicating risk-related information can be a daunting challenge. Communication must be targeted, understandable, and effective without inadvertently provoking hostility and mistrust. *Risk Communication*, a handbook of strategies and guidance for conveying risk information effectively, has proven a valuable resource. In this second edition, readers get the latest updates on pertinent topics—including current laws, approaches, computer applications, stakeholder participation methods, and methods to evaluate effectiveness. All-new sections explain how to work with the media and represent risks pictorially."
(Publisher's Commentary)



CB-175482
ISBN 1-57477-055-1
Battelle Press
505 King Avenue
Columbus, OH 43201
Phone: 1-800-451-3543
Fax: (614) 424-3819
http://www.battelle.org/bookstore

Mauroni, Albert J. **America's Struggle with Chemical and Biological Warfare.** Westport, CT: Praeger, 2000, pp. 320.

This multifaceted work is a history of the U.S. Chemical Corps from 1968 through 1990, a discussion of the evolution of CBD military doctrine and policy and a critique of same. In Part I the author describes how, "...the army turned its back on the Chemical Corps." Part II deals with, "...the rationale behind the defensive equipment developed in the 1980's, in addition to the budding binary chemical weapons program." Part III, "...shows where these programs faltered." Part IV, "...shows how all the training and equipment development paid off, in the Gulf War and at home." Tables, figures, photographs, a bibliography and an index are included.

CB-144435
ISBN 0-275-96756-5
Praeger Publishers
88 Post Rd.West
Westport, CT 06881
Phone: 1-800-225-5800
http://www.praeger.com

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CALENDAR OF EVENTS

The CBIAC highlights conferences, symposia, meetings, exhibitions and workshops of interest to the CBD community both on our website and in every issue of our newsletter. If you would like to have a CBD-related event posted on the CBIAC Calendar of Events, submit the pertinent information via email to **cbiac@battelle.org**. Due to space limitations, the CBIAC will accept submissions on a first-come, first-served basis and reserves the right to reject submissions. For a more extensive list of events, **visit our website at http://www.cbiac.apgea.army.mil/.**

2001 MEETINGS

May 8-10, 2001
Force Protection Equipment Demonstration III (FPED III)
(pre-registration required)
Quantico Marine Corps Base
Quantico, Virginia
http://www.monmouth.army.mil/smc/pmpse

May 9, 2001
Disaster Management for the New Millennium
Sheraton Biscayne Bay
Miami, Florida
American Society for Industrial Security (ASIS)
Tel: (703) 519-6200
Email: asis@asisonline.org
http://www.asisonline.org/calendar.html

May 13-18, 2001
Enzyme 2001: International Symposium on Applications of Enzymes in Chemical and Biological Defense
Sheraton World Resort
Orlando, Florida
POC: Debbie Bilotto
Tel: (410) 612-8247
Email: bilotto_deborah@bah.com

May 14-15, 2001
Contingency and Operational Procurement Exhibition (COPEX) 2001
Hyatt Regency Crystal City
Arlington, Virginia
http://www.iacsp.com/copex.html

May 14-15, 2001
9th Annual Terrorism Trends & Forecasts 2001 (held during COPEX – USA 2001)
Arlington, Virginia
POC: The International Association for Counterterrorism & Security Professionals (IACSP)
Tel: (703) 243-0993 or (201) 461-5422
http://www.iacsp.com/annual_symposium.html

May 14-16, 2001
NATO Human Factors and Medicine (HFM) Panel Symposium: "Operational Medical Issues in Chemical and Biological Defense"
Lisbon, Portugal
POC: John V. Wade, D.V.M., Ph.D.
Tel: (703) 413-7817
Email: wadej@battelle.org

May 14-17, 2001
Global Demilitarization Symposium & Exhibition
(#1580)
Reno, Nevada
POC: Rhonda Mohrmann
Tel: (703) 247-2586
Email: rmohrmann@ndia.org
http://www.ndia.org
http://register.ndia.org/interview/register.ndia?~Brochure~1580

May 14-18, 2001
Eco-Informa 2001: Environmental Risks & the Global Community
Argonne National Laboratory
Argonne, Illinois
POC: Joan Brunsvold
Tel: (630) 252-5585
Email: jbrunsvold@anl.gov
http://eco-informa.ead.anl.gov/

May 21-24, 2001
2001 Acquisition, Logistics and Technology Conference
Lancaster Host Resort and Conference Center
Lancaster, Pennsylvania
POC: Jo Ann Brown
Tel: (310) 698-2686
Email: jabrown@sherikon.com
https://altconf.sherikon.com/

May 22-24, 2001
CWD2001: The International CW Demil Conference
Nagaragawa International Convention Center
Gifu City, Japan
POC: DERA
http://www.dera.gov.uk/cwd2001/chemical_weapons_demilitarisation_conference.htm

May 22-24, 2001
SBCCOM Warrior Systems APBI and Exhibition: Technology Leveraging for Public Safety
Reno, Nevada
(#1960)
POC: Ann Saliski
Tel: (703) 247-2577
Email: asaliski@ndia.org
http://register.ndia.org/interview/register.ndia?~Brochure~196

May 29-31, 2001
DMSO Industry Days 2001
Sheraton Premiere at Tyson's Corner
Vienna, Virginia
http://www.trainingsystems.org/events/11D.htm

June 4-7, 2001
The Sixth International In Situ and On-Site Bioremediation Symposium
Sheraton Harbor Island
San Diego, California
POC: The Conference Group
Tel: (800) 783-6338 or (614) 424-5461
Email: conferencegroup@compuserve.com
http://www.battelle.org/environment/er/biosymp/biosymp.html

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Calendar of Events *cont.*

June 4-8, 2001
COURSE: Field Management of Chemical and Biological Casualties (FCBC)
#6H-F27
USAMRICD, Aberdeen Proving Ground, Maryland
(Advance registration required)
POC: Chemical Casualty Care Division, USAMRICD
Tel: (410) 436-2230 or DSN: 584-2230
Email: cora.randle@amedd.army.mil
http://ccc.apgea.army.mil

June 11-15, 2001
National Operations Security Conference & Exhibition
Westin Innisbrook Resort
Tampa, Florida
POC: McNeil Technologies
Tel: (410) 553-6465
http://www.ioss.gov/html/opsec_conferences/national2001/overview.htm

June 12-14, 2001
69th MORSS
US Naval Academy
Annapolis, Maryland
POC: MORSS
Tel: (703) 751-7290
Email: morsoffice@aol.com
http://www.mors.org/

June 15-19, 2001
International Symposium on Protection against Chemical and Biological Warfare Agents
Stockholm City Conference Centre
Norra Latin, Stockholm, Sweden
POC: Kurt Persson (scientific programme)
Tel: +46-90-106 773
Email: persson@ume.foa.se
POC: Asa Lundvall (exhibition)
Tel: +46-90-106 727
Email: lundvall@ume.foa.se
POC: Marianne Olofsson (registration)
Tel: +46-90-106 602
Email: molofsson@ume.foa.se
http://www.cbwsymp.foa.se/

July 9-13, 2001
2001 World Wide Chemical Conference and Chemical Warfighters Conference
(#1300)
Ft. Leonard Wood, Missouri
POC: Christina Buck
Tel: (703) 247-9478
Email: cbuck@ndia.org
http://www.ndia.org
http://register.ndia.org/interview/register.ndia?~Brochure~1300
http://www.wood.army.mil/usacmls/wwcc/wwcc.htm

July 24-26, 2001
The 2001 DOE Chemical and Biological Nonproliferation Program (CBNP) Summer Meeting
Crystal City Marriott
Arlington, Virginia
POC: Rick Kingman
Tel: (703) 535-8725 x106
Email: kingmanr@defensegp.com
http://www.nn.doe.gov/cbnp

July 24-29, 2001
18th Annual Firehouse Expo AND Emergency Medical Services-Mass Casualty Incidents (EMS-MCI) Conference & Exposition
Baltimore Convention Center
Baltimore, Maryland
POC: Cygnus Expositions
Tel: (800) 827-8009 ext. 3348/3349 or (952)894-8007
http://www.emsmci.com
http://208.42.105.26/firehouseexpo/events_ems.po

August 6-10, 2001
International Conference on Disaster Management
Rosen Centre Hotel
Orlando, Florida
POC: David Tait
Tel: (850) 906-9221
Email: mail@disastermeeting.com
http://www.disastermeeting.com

August 26-30, 2001
Force Health Protection 2001: Service to the Soldier
Albuquerque, New Mexico
http://chppm-www.apgea.army.mil/fhp/

September 4-7, 2001
DTRA's First Biennial Threat Reduction Conference
Norfolk, Virginia
Tel: (703) 767-0145
Email:DTRAConferenceCoordinator@dtra.mil
http://www.ThreatReductionConference.org

September 5-6, 2001
Wetlands & Remediation: The Second International Conference
Sheraton Burlington
Burlington, Vermont
POC: Karl Nehring
Tel: (614) 424-7604.
Email: wetlandsconf@battelle.org
http://www.battelle.org/wetlandscon/default.htm

September 15-21, 2001
COURSE: In-House Medical Management of Chemical and Biological Casualties (MCBC)
#6H-F26
USAMRICD, Aberdeen Proving Ground, Maryland and
USAMRIID, Fort Detrick, Maryland
(Advance registration required)
POC: Chemical Casualty Care Division, USAMRICD
Tel: (410) 436-2230
DSN: 584-2230
Email: cora.randle@amedd.army.mil
http://ccc.apgea.army.mil

INFO. RESOURCES *cont.*

Documents from the Web

Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction. **Toward A National Strategy for Combating Terrorism**. Second Annual Report to the President and the Congress of the United States of the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction. Washington, D.C.: Rand Corporation, 2000. http://www.rand.org/organization/nsrd/terrpanel/

CB-177371
Rand Corporation
1333 H Street, N.W.
Washington, D.C. 2000-4707

Larsen, Col. Randall J. and Dr. Ruth A. David. **Homeland Defense: Assumptions First, Strategy Second.** Journal of Homeland Defense. Nov. 30, 2000. http://www.homelanddefense.org/journal/Articles/article.cfm?article=1

CB-124722
Anser Corporation
Arlington, VA 22202

Lee, William E. and H. Gail Thompson. **Analysis of Bacillus Globigii Spores Using the Biodetector.** Technical Memorandum 1999-154. Medicine Hat, Alberta: Defense Research Establishment Suffield, 1999. Available from GrayLit Network website (http://graylit.osti.gov). Select "DTIC Report Collection" and do a title or keyword search.

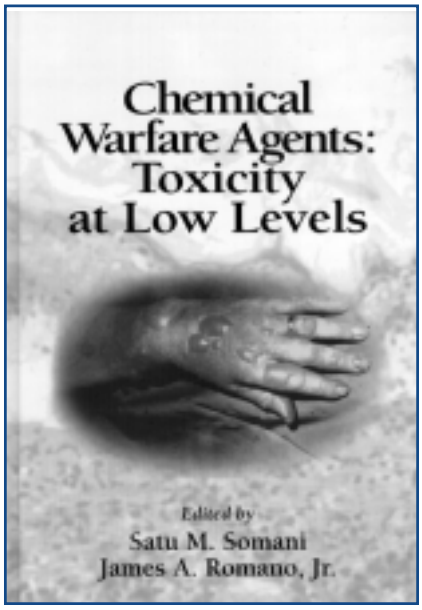
CB-171956
Defense Research Establishment Suffield
Ralston, Alberta
Canada

Garland, J. A. *et al*. **The Hazard From Reaerosolized Biological Warfare Agents.** London: European Research Office of the U.S. Army, 1999. Available from GrayLit Network website (*http://graylit.osti.gov*). Select "DTIC Report Collection" and do a title or keyword search.

CB-168367
European Office of the U.S. Army
London

Research at Army's MRICD Featured in New Book: Chemical Warfare Agents: Toxicity at Low Levels

by Cindy Kronman, U.S.A. MRICD PAO



The research findings of scientists pursuing the Army's mission of developing medical protections against the effects of chemical warfare agents are the substance of a new book by CRC Press entitled **Chemical Warfare Agents: Toxicity at Low Levels**. The book is edited by Dr. Satu M. Somani and Col. James A. Romano, Jr. Dr. Somani, of Southern Illinois University School of Medicine, has conducted research on nerve agents under contract for the U.S. Army Medical Research and Materiel Command (USAMRICD) for over 15 years. Col. Romano, who holds a doctorate in experimental psychology, is the commander of the USAMRICD, at Aberdeen Proving Grounds, the Defense Department's premiere laboratory for medical chemical defense research.

Seven of the book's fourteen chapters were authored or co-authored by USAMRICD's experts in the toxicity of chemical warfare agents and the development of medical countermeasures. In addition, scientists from USAMRICD's sister laboratory, the Walter Reed Army Institute of Research, contributed to the book, as did scientists from the U.S. Army Edgewood Chemical Biological Center, the U.S. Army Center for Health Promotion and Preventive Medicine, academia, and allied government research laboratories.

The comprehensive text covers such topics as the health effects of low level exposure to nerve agents and to the blister agent sulfur mustard, the acute and chronic toxicity of cyanide and riot control agents, the development of pharmacological countermeasures to botulinum intoxication, and the psychological factors in chemical warfare and terrorism. Chapters explore how stress can affect the toxicity of chemical agents and the effectiveness of treatment compounds and describe the Army's pursuit of new methods of etoxification through the development of circulating scavenger enzymes and enzymes covalently bound to a decontaminating sponge. In addition, the last chapter discusses the emergency response to a chemical warfare incident, describing domestic preparedness, first response, and public health considerations.

Dr. James M. King, Deputy Director of the CBIAC, is co-author, along with Col. James A. Romano, of chapter 13, which addresses "Psychological Factors in Chemical Warfare and Terrorism." Dr. King holds a doctorate in Psychology from the University of Texas at Arlington and has collaborated regularly with Col. Romano. **Chemical Warfare Agents: Toxicity at Low Levels** is part of the CBIAC collection.

Somani, Satu M. and James M. Romano, Jr., eds. **Chemical Warfare Agents: Toxicity at Low Levels.** Boca Raton, FL: CRC Press, 2000.

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"RestOps ACTD..." *cont.*

provide preliminary usability and suitability data and feedback. These "operational merit" assessments will then translate into a further downselection of technologies that will be deployed to Osan AB for operational evaluation during the Preliminary Demonstration in February 2002. The LUAs serve another purpose in that they represent the point at which the technology and operational approaches to RestOps begin to merge in order to develop integrated and comprehensive solutions for achieving RestOps objectives.

Figure 2. Three airmen don MOPP 4 gear and prepare to take cover during a SCUD 'attack' on Osan AB

The Operational Approach

From the operational perspective, RestOps activities have included a Background Visit as well as preparation for, and execution of, the Baseline Exercise. The Background Visit was conducted early in FY00 in order to characterize Osan AB's current operations and infrastructure, in-place CB defense technologies, installation layout, airfield operations and relevant tactics, techniques and procedures (TTPs). The information collected during the Background Visit also served to identify the critical wartime functions at Osan AB that needed to be further characterized during the Baseline Exercise.

Planning for the Baseline Exercise took a considerable amount of effort and proved to be a logistical challenge. Approximately 450 subject matter experts, data collectors, exercise managers and support personnel deployed to Osan AB for the event. RestOps personnel were on-site weeks in advance of the exercise in order to familiarize themselves with both facilities and the people and operations they would be observing. After the exercise was completed, the data collectors were required to remain on-site in order to transfer their data into a master database.

The objective of the exercise was to establish a baseline of how the base currently prepares for and responds to a chemical-biological attack. This baseline acts as a yardstick by which RestOps can measure any enhancements to mission capability provided by new or revised procedures and new technology.

Over the course of the seven-day exercise, RestOps personnel successfully collected thousands of data points covering 18 major functional areas across the entire base. Functional areas covered included: F-16 and A-10 fighter squadrons; munitions; command and control; civil engineering (CE) and CE Readiness; security; medical; supply; and logistics. Also included in the functional areas were tenant units at Osan such as the Army Patriot units and Air Mobility Command. The exercise scenario was executed as planned and was judged to have realistically stressed the fighter wing.

Over the next few months, the data generated during the Baseline Exercise will be analyzed and exercise conclusions will allow for recommendations and adjustments to be implemented in Osan CB procedures prior to the preliminary demonstration early in 2002. The procedural enhancements resulting from the exercise will then be coupled with technologies emerging from the LUAs and RestOps will move down the road to its next major event - the Preliminary Demonstration - scheduled for February 2002. The results of the Preliminary Demonstration will in turn lead to the execution of the Final Demonstration to be conducted in February 2003. The ultimate goal of the five-year process is to introduce new technologies and procedures across the Department of Defense for chemical and biological defense enhancements at fixed sites worldwide.

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IN THE NEWS • *By Mary Frances Tracy*

Russia Vows to Start Destroying Chemical Arms
Tyler, Patrick E.
http://www.nytimes.com/2001/02/09/world/09WEAP.html
February 9, 2001
Russia has pledged to begin the destruction of 40,000 tons of lethal chemical weapons this summer. In March, a plan for the operation of the destruction plants will be presented to President Vladimir V. Putin. However, skepticism is high since Russia failed to accomplish the destruction of one percent of the chemical weapons stocks (400 tons) by the end of 2000 as prescribed by the Chemical Weapons Convention. The U.S. has destroyed about 15 percent of its chemical weapons stockpile.

$250M set aside for bio-chem gear
Pugliese, David
http://ottawacitizen.com/national/010202/5105487.html
February 2, 2001
Concerns over chemical and biological (CB) agents on the battlefield and in the hands of terrorists has lead the Canadian Forces to spend $250 million on protective equipment. It is reported that this is the biggest individual investment in the CB protection area that the Canadian Forces has ever seen.

The Corps Will Introduce the First New 'Cammies' in 20 Years
Starr, Barbara
http://abcnews.go.com/sections/us/DailyNews/camouflage010130.html
January 30, 2001
The U.S. Marines are now on the cutting edge of fashion - fashion on the battlefield, that is. The new 'cammies' - the specifically designed camouflage uniforms worn by troops on the battlefield - will incorporate a new camouflage pattern that resembles a computerized digital printout of pixels. Other new features include: more brown tones in the print, camouflage print which better reflects the optical realities of the battlefield, permanent press fabric, zip-off long sleeves on the shirt that can instantly convert it to short sleeves for hot weather, reinforced knees in the pants, and high-topped brown suede lace-up boots. Officers will wear black rank insignia on their lapels instead of the shiny silver and gold insignia.

1st sarin gas bomb neutralized
Ednalino, Percy and Theo Stein
http://www.denverpost.com/news/news0129k.htm
January 29, 2001
Six Cold War-era nerve gas bomblets containing sarin were found at the Rocky Mountain Arsenal this past fall. So far, one has been successfully destroyed using the Explosive Destruction System (EDS). The remaining bomblets are scheduled for destruction over the next two weeks.

Panel Proposes Single Agency To Oversee Security Issues
Sherman, Jason
Defense News
January 15, 2001
A proposed restructuring of U.S. homeland security would create a single, separate body to deal with homeland security issues. Homeland security is a broad, new concept for defending the nation that is not necessarily limited to a military-centered approach to protecting the U.S. The restructuring would group an array of response teams from a myriad of federal agencies under one body to handle threats to the U.S.

DoD Establishes New Emergency Preparedness Liaison Officer Program Policy
News Release from the United States Department of Defense: No.012-01
January 10, 2001
The DoD announced today that is has established a new policy for the management of the Emergency Preparedness Liaison Officer (EPLO) programs in each of the military services. The new program guidance reinforces the Department's heightened commitment to support civil authorities in their response to catastrophic disasters and standardizes the qualifications for Reserve component military officers serving as liaisons with military and civilian emergency responders.

Catching The Bug Before It Kills
Brown, Doug
http://www.zdnet.com/intweek/stories/news/0,4164,2671596,00.html
January 7, 2001
The U.S. military is preparing to conduct a vast surveillance of web sites and electronic databases aimed at detecting incidents of bioterrorism. The Bio-Surveillance System, a five year, $24M project sponsored by the Defense Advanced Research Projects Agency (DARPA), will build a network linking various sources of health-related information that will sound the alarm if terrorists have clandestinely used biological weapons such as anthrax spores in a specific location.

Scientists Develop Technology To Detect Bio Agents in Water Supply
Emergency Preparedness News
December 5, 2000
Scientists at the University of North Carolina at Greensboro (UNCG) have developed a gene array technique to detect biological agents in water. The technology uses DNA sequences bound to a microchip or glass slide to detect within seconds the presence of pathogens in water samples. UNCG's effort will be supported by a $500,000 addition to the FY 2001 VA/HUD appropriations bill that is the first installment of a three-year project.

Barringer Technologies Inc. Signs Development Agreement for Rapid Pathogen Detection
http://biz.yahoo.com/bw/001108/nj_barring.html
November 8, 2000
Barringer Technologies Inc. has signed an agreement with Lipoxen Technologies, Ltd. of London for the development of a new technique for the rapid screening of pathogens. The objective is to use the IONSCAN" detector and leading edge liposome technology to develop a detection method which could be used to detect pathogens in food, water and/or air in real time.

Joint Service Chemical, biological protective suit ready for issue to units
Biberdorf, Curt
The Warrior
November-December 2000
The Joint Service Lightweight Integrated Suit Technology (JSLIST) overgarment has been procured since 1997 and will be released from the war reserve to Army units as the Battledress Overgarment (BDO) supply is depleted. Fielding will continue through 2005. The JSLIST replaces three types of chemical and biological protective suits used by the services. The JSLIST provides economical advantages over the previous generations of protective suits. It has a wear life of 45 days, a service life of 120 days and can be washed six times.

*CBD News On The Web**

National Defense Magazine Online
http://nationaldefense.ndia.org

A Review of the Scientific Literature As It Pertains to Gulf War Illnesses, Volume 5: Chemical and Biological Warfare Agents
By William S. Augerson
http://www.gulflink.osd.mil/library/randrep/bw_paper/

Army Chemical Review Magazine Online
http://www.wood.army.mil/CHBULLETIN/

U.S. Government Efforts to Create A Homeland Defense Capability: A Program and Budget Overview of Federal Spending on Counterterrorism and WMD
Center for Strategic and International Studies
By Anthony H. Cordesman
http://www.csis.org/homeland/reports/budgetoverview.pdf

Overview of Civil Protection: The U.S. Way
By Anna Johnson-Winegar, Ph.D.
Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense
http://www.homelanddefense.org/Johnson_Winnegar.htm

Proliferation: Threat and Response
DoD Report concerning countries that have or may be developing NBC weapons and the means to deliver them.
http://www.defenselink.mil/pubs/ptr20010110.pdf

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NEW CBIAC PRODUCTS

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Description: PDD 39 directs that U.S. Forces give the highest priority to developing effective capabilities to detect, prevent, defeat, and manage consequences of nuclear, biological, or chemical (NBC) materials or weapons used by terrorists. The current Force Protection training for DoD personnel consists of four levels. Level 1 training must be conducted for military, DoD civilians, and family members prior to deployment. Level II training is a resident course to prepare officers and NCOs to serve as advisors to unit commanders for Force Protection (FP) matters. Level III is part of the 05/06 level pre-command course, while Level IV is the senior commander/executive level seminar. This CD ROM contains slide shows to assist instructors in giving Level I and Level II courses, along with additional information that will assist officers or NCOs assigned as advisors to the commander for Force Protection matters.

BACWORTH Encyclopedia

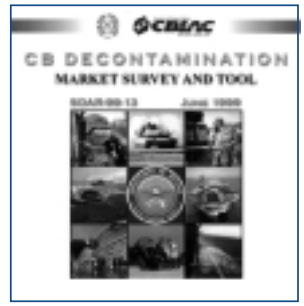
Distribution Limitation: U.S. Federal Government Agencies Only; Export Controlled; For Official Use Only
CBIAC Product Number: HB-00-01 **Price:** $150.00
Publication Date: May 2000 **Availability:** CBIAC
Product Category: Handbook **Media:** CD-ROM
Description: The Biological and Chemical Warfare Online Repository and Technical Holdings (BACWORTH) Encyclopedia contains detailed data on 66 CB agents. Entries include both at-a-glance summaries and detailed description levels. There are also 9 overview functional chapters addressing critical CB defense topics in a non-agent specific format. The Encyclopedia cites more than 1,400 references. Each Agent entry covers 13 topics: Type/Name/Simulants, History, Description/Symptoms, Diagnostics, Properties/Persistence, Exposure/Effects, Prevention/Treatment, Alternate Uses, Precursors, Production/Storage, Detection, Weaponization/Dispersal, and Protection/Decontamination.

Critical Review on Anti-Crop Biological Agents and Associated Technologies

Distribution Limitation: U.S. Federal Government Agencies and Their Contractors Only; Unclassified
CBIAC Product Number: CR-00-02 **Price:** $25.00
Publication Date: September 2000 **Availability:** CBIAC
Product Category: Critical Review **Media:** Paperback
Description: This critical review is designed to provide the reader with a basic understanding of the principles underlying the use of plant diseases as biological weapons. Based on open literature sources, this critical review provides an extensive list of open literature information resources for readers who wish to pursue this area of inquiry further. Topics addressed include fungal agents, bacterial diseases, viral diseases, newly emerging diseases, genetically modified anti-crop pathogens, agent production and dissemination, prevention, detection, treatment, and consequence management.

CB Decontamination Market Survey and Tool

Distribution Limitation: U.S. Federal Government Agencies and their Contractors; Export Controlled; Unclassified
CBIAC Product Number: SOAR-99-13 **Price:** $95.00
Publication Date: June 1999 **Availability:** CBIAC
Product Category: State-of-the-Art Report **Media:** CD-ROM
Description: This SOAR contains a knowledge-based decontamination database and search tool covering the full range of current commercial and military decontamination technologies and systems, decontamination technologies and systems undergoing development, and ideas for integration of technologies to achieve effective decontamination. The SOAR also contains a version of CBIAC CR-99-10, Wide Area Decontamination: CB Decontamination Technologies, Equipment, and Projects.



Respirator Encumbrance Model

Distribution Limitation: U.S. Federal Government Agencies and their contractors; Unclassified
CBIAC Product Number: SOAR-01-03 **Price:** $125.00
Publication Date: September 2000 **Availability:** CBIAC
Product Category: State-of-the-Art Report **Media:** CD-ROM
Description: The Respirator Encumbrance Model (REM) is a PC Windows'-based database application that provides information on human performance degradation for proposed mask designs. Such modeling minimizes the guesswork, cost, and effort commonly expended to determine effects of new mask designs on wearer operational performance. The REM is a collection of tables, screens, buttons, fact sheets, and lists that interact to provide a fractional human performance rating value for individuals performing military tasks while wearing respirators, along with a bibliographic database. The REM derived task performance ratings represent the expected level of performance relative to performance without a mask. Each performance rating is based on mask design parameters entered and mission or task set selected.

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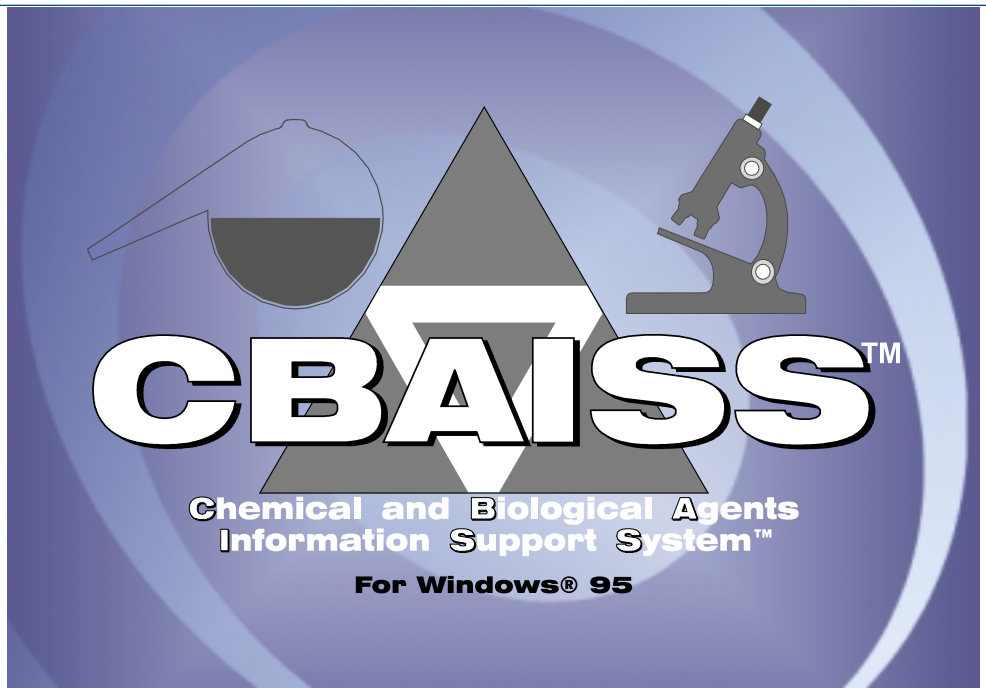

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