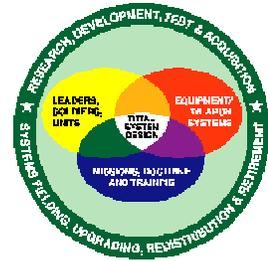




# MANPRINT Quarterly

February 2000



## Director's Corner

Permit me to begin by wishing all of you a Happy New Year and my hope that the coming year (leading to the millennium) will find all of you meaningfully and gainfully engaged and employed in advancing the status of MANPRINT and Human Systems Integration.

As you may gather, I am continuing to serve as the Acting Director of the Army's MANPRINT and Soldier Oriented R&D (a.k.a. Personnel Technologies) programs. This is due to efforts on the part of individuals within the Army Acquisition community to require that the position of Director, MANPRINT, be made an "Acquisition Corps Critical" position. While some may regard this is a non-issue

there are others who view such a requirement as tantamount to silencing the MANPRINT program. Accordingly, the battle continues between the forces of light and darkness. Time will tell who wins the war.

On a brighter note, it gives me great pleasure to inform all of you that LTG Ohle, the Deputy Chief of Staff for Personnel, recently took part in a day long meeting with the Chief of Staff and other members of the Army's senior leadership to discuss the Operational Requirements Document for the Brigade Combat Teams (BCT). These new brigades will, as many of you may know, make use of a COTS/NDI acquisition strategy for purchasing medium weight weapons platforms that will constitute the Initial BCT's. A key point raised over the course of this meeting was the criticality of ensuring that MANPRINT was made an integral part of the acquisition strategy. Accordingly, I foresee considerable work for many of you in the coming months as configuration of the first of these BCTs takes place.

A second item I wish to share with you deals with the MANPRINT Symposium 2000. We are planning on holding the symposium in late July at the Crystal City Double Tree Hotel. The theme will be MANPRINT & Human Systems Integration in Joint Operations. We are working to secure VIP speakers from each of the US military services as well as convene practitioner workshops to exchange ideas and approaches relevant to the execution of our programs. More details will be posted on the web site.

One final point. This office and the ADCSPER are gearing up to secure added resourcing for MANPRINT in the 02-07 POM at meetings of the Science & Technology Panel of the Equip PEG. We have been successful in securing strong support for such an increase from TRADOC HQ as well as from the Army Digitization Office. We can only hope that this support will translate into more resources for MANPRINT and related R&D.

**Dr. Bob Holz**  
Director (Acting)  
MANPRINT

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## **A Brief Description of the U.S. Army's Health Hazard Assessment Program**

by

*LTC (Ret) George R. Murnyak*

### **Purpose**

The Army's Health Hazard Assessment (HHA) program is designed to identify and eliminate or control health hazards associated with the life cycle management (LCM) of new materiel systems. Medical personnel assess the health hazards inherent to or resulting from the operation and maintenance of materiel systems. The HHA program focuses on potential health hazards resulting from training and combat scenarios; however, health hazard issues in any phase of the LCM may be addressed. The results of this assessment are documented in a formal HHA report. This document is used to provide developers, testers, evaluators, and users of new materiel, an analysis and assessment of health hazard issues.

### **Hazard Identification**

The first step in the HHA process is to identify potential health hazards. Hazard identification consists of analyzing specific chemical, physical, or biological agents associated with the operation and maintenance tasks of a new system. To aid in the identification of health hazards, the medical assessor uses experience from:

- Previous systems
- Safety assessments
- Human factor assessments
- Operational requirement documents
- Management documents
- Test documents
- User manuals
- Field observations

### **Exposure Assessment**

The exposure assessment is fundamental to the evaluation process. The medical assessor needs to review the information available on the:

- Levels of the specific agents
- Potential routes of exposure
- Duration of exposure
- Frequency of exposure
- Population at risk
- Use/training scenario

Exposure levels can be determined by direct readings of actual environmental conditions during training or simulated combat situations. This data would be collected during user or technical testing by the developer. In some unusual cases, the medical assessors may need to collect their own data. For some applications, modeling techniques can yield useful potential exposure data at less cost and in less time than actual monitoring.

The routes of exposure include air, skin, eye, water, and food. Each of the potential hazardous agents needs to be analyzed with respect to how they may impact human health. The duration of exposure and frequency will be determined by the intended use of the system and how soldiers are trained to use the system.

Exposure assessments are a key to the HHA process. An evaluation of the routes, magnitude, frequency, and duration of exposure must be made to complete the HHA process. In those cases when critical data are not available or incomplete, a professional judgment or inference based on the assessor's experience and reasoning may be necessary.

### **Hazard Assessment**

Hazard assessment combines the exposure assessment and the identification information to evaluate the extent of the health hazards. The exposure estimates are compared with established health criteria to assess the significance of the hazards. The goal of the HHA program is to identify potential hazards early in the life cycle and design the hazards out of the system. When health hazards cannot be eliminated, estimates of health risk severity and probability are made in order to characterize the uncontrolled hazard with a risk assessment code (RAC). The RAC procedure is adopted from MIL-STD 882 and is used to quantify health risks to personnel who will be operating or

*continued on page 3*

maintaining Army systems during testing, training, or combat.

### Control Recommendations

The medical assessor provides recommendations for the elimination or control of identified health hazards. RAC codes are assigned to uncontrolled health hazards to aid in the prioritization of control actions. The following table is a description of the nine categories of health hazards defined in AR 40-10.

**Table. Categories of Health Hazards Addressed by the Army's HHA Program.**

| Category              | Description   | Examples   |
|-----------------------|---|--|
| Acoustic energy       | Potential energy that exists in a pressure wave that is transmitted through air that may interact with the body to cause loss of hearing or damage to internal organs.  | Steady-state noise from engines and helicopter motors. Impulse noise from shoulder-fired weapons.                                      |
| Biological substances | Exposures to microorganisms, their toxins, and enzymes.   | Sanitation concerns related to waste disposal, food handling, and personal hygiene.  |
| Chemical substances   | Hazards resulting from exposures to toxic liquids, mists, gases, vapors, fumes, or particulate matter.  | Diesel engine exhaust from vehicles and generators. Combustion products of weapons firing.   |
| Oxygen deficiency     | Hazard may occur when atmospheric oxygen is displaced in a confined/enclosed space and falls below 21% by volume. Also used to describe the hazard associated with lack of adequate ventilation in crew spaces. | Enclosed or confined spaces associated with shelters, storage tanks, and armored vehicles.   |
| Radiation energy      | Ionizing radiation is any form of radiation sufficiently energetic to cause ionization when interacting with living matter.   | Radioactive chemicals used as light sources for optical sights and instrument panels.  |
|                       | Nonionizing radiation refers to emissions from the electromagnetic spectrum that has insufficient energy to produce ionization (Lasers, Ultraviolet, and Radiofrequency radiation).                             | Laser rangefinders used with weapon systems. Microwave and radiofrequency radiation associated with radar and communication equipment. |
| Shock                 | Delivery of a mechanical impulse or impact to the body. Expressed as a rapid acceleration or deceleration.  | Opening forces of a parachute harness.   |
| Temperature extremes  | Includes human health effects associated with high or low temperature which may be exacerbated by the use of a materiel system.   | Total encapsulating protective chemical garments which add to the body's heat burden.  |
| Trauma                | Injury to eyes or body from impact or strain.   | Physical injury caused by blunt or sharp impacts. Musculoskeletal trauma caused by excessive lifting or repetitive motions.            |
| Vibration             | Adverse health effects caused by contact of a mechanically oscillating surface with the human body.   | Sources of vibration include riding and driving vehicles and aircraft.   |

## **A Comparison of the U.S. Army's Health Hazard Assessment and Toxicity Clearance Programs**

### **The U.S. Army's Health Hazard Assessment (HHA) Program.**

The Army's HHA Program is an Army Medical Department (AMEDD) program conducted in cooperation and support of the Army Materiel Acquisition Decision Process (MADP). A specific objective of the program is to protect soldier health, and enhance performance and readiness by minimizing the effects of health hazards in the workplace. For the HHA Program, the workplace is normally not one that compares to civilian life (e.g., construction, motor pool, supply, office work) but are military-unique operations or pieces of equipment (e.g., armored vehicle operations or maintenance, field maneuvers, weapon system research, test and development).

The HHA Program supports Department of Defense (DoD) and Army acquisition program compliance to health assessment requirements contained in DoD and Army regulations and Army MANPRINT policy. The proponent for the HHA Program is The Army Surgeon General; however, in 1995 he designated the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) as his Executive Agent. A more detailed description of the HHA Program may be found elsewhere in this MANPRINT Quarterly, in Army Regulation (AR) 40-10, or at USACHPPM's web site (<http://chppm-www.apgea.army.mil/hha/>). If you read a description of the HHA Program, you'll find that one of the nine potential health hazards addressed is the potential exposure of soldiers to chemical substances.

When a new chemical substance not previously approved for Army use is proposed for use in an item being assessed by the HHA Program, the HHA Program will normally ask the USACHPPM's Toxicity Evaluation Program to provide a toxicity evaluation of the chemical for inclusion in the HHA report. When someone proposes to use a new chemical, not with a particular weapon or piece of

equipment, but generically throughout the Army, approval must be obtained via a Toxicity Clearance. The Army Surgeon General's Toxicity Clearance Program at USACHPPM is described below and in AR 40-5. (USACHPPM POC: Mr. Robert Gross, DSN 584-2925/COM 410-436-2925.)

### **The U.S. Army's Toxicity Clearance (TC) Program.**

A toxicity evaluation and clearance for a specific chemical or material ensures the safety of Army personnel prior to its use. Army Regulation 40-5 promulgates the Toxicity Clearance (TC) process in the Army. A TC involves a toxicological evaluation of chemicals and materials prior to introduction into the Army supply system. The materiel developer's program/product/project manager (PM) is responsible for identifying technically feasible materials and requesting appropriate consultation from the AMEDD (i.e., USACHPPM's Toxicity Evaluation Program) through their respective Major Command (MACOM) surgeon's office.

A TC is a process where recommendations from a medical and toxicological standpoint are formulated concerning an article or chemical compound that is to be introduced into the acquisition process, maintenance or supply system. U.S. Army Center for Health Promotion and Preventive Medicine personnel perform the TC after receiving the request from a MACOM surgeon's office. The PM must provide background information concerning the product material along with the request for the TC. The information should include the scope and length of use on the commercial market, human and/or animal toxicity data, material safety data sheet (OSHA Form 20) and reports of any known adverse health effects in use or manufacture. The requirement for additional toxicity testing will vary with the intended use of the candidate item and its chemical nature. Examples of items requiring a TC are solvents, fire extinguishing

*continued on page 5*

agents, arthropod repellents, fabric finishes, refrigerants, hydraulic fluids, metals/alloys, etc.

The USACHPPM, after reviewing pertinent information, issues guidance in the form of a TC regarding the safe use of the proposed material. It is possible that a TC may not be granted because of insufficient toxicological data. In that case, additional toxicological testing is recommended. It is also possible that additional safety and health procedures, equipment, and/or controls are recommended for the safe use of a particular material in a specific application.

A TC is an extremely valuable tool for the PM to make an educated decision on the possible use of a chemical or material. It is important to remember that a TC is application and exposure scenario specific. At no time does USACHPPM recommend an alternative because the efficacy of a product is not addressed (e.g., is chemical X a better solvent than chemical Y?). It is the responsibility of the decision maker at the requesting organization, with appropriate medical health and safety guidance from the AMEDD, to make those decisions and recommend a candidate compound.

Formerly, Army chemicals and materials used in the development and sustainment of Army systems were covered in Military Specifications and Standards. Many of these specifications and standards are a thing of the past. With the incorporation of acquisition reform/streamlining throughout DoD, performance specifications, commercial item descriptions and consensus standards are replacing military specifications and standards. Military specifications and standards received an initial toxicity review upon development and those still in effect are reviewed periodically to evaluate new toxicity information. Because numerous products and chemicals are being proposed as alternatives that have not had an appropriate AMEDD medical and toxicological evaluation performed, the TC is an even more valuable tool to the Army leadership making procurement or acquisition decisions.

The PM must contact the MACOM surgeon's office to request a TC on a chemical or material early in the MADP to avoid delays. Direct contact with USACHPPM's Toxicity Evaluation Program is possible to determine if a TC has already been completed on a chemical/material. Previously completed TCs are also listed on USACHPPM's website as well as a form to submit information to have a TC completed on a particular chemical or material (<http://chppm-www.apgea.army.mil/tox/>). Toxicity clearances are granted for specific applications and in many cases approval for one situation may not cover a different usage if the exposure scenario has changed. (USACHPPM POC: Mr. Rich Angerhofer, DSN 584-3980/COM 410-436-3980. Army Acquisition Pollution Prevention Support Office POC: Mr. Joe Macko, DSN 767-5964/COM 703-617-5964.)

continued from page 3

**Health Hazard Assessment Support**

Combat Developers can request HHA support for document reviews from the U.S. Army Medical Department Center and School:

Commander  
 USAMEDDC&S  
 ATTN: MCCS-FCC-P (Mr. Ben Gibson)  
 Fort Sam Houston, TX 78234-6123  
 DSN 471-1622  
 COM 210-221-1622, FAX 0121

Combat and Materiel Developers can request HHA support for MANPRINT, System Safety, and Test & Evaluation Integrated Product Teams from the HHA Program at the U.S. Army Center for Health Promotion and Preventive Medicine:

USACHPPM  
 ATTN: MCHB-TS-OHH (MAJ John Teyhen)  
 5158 Blackhawk Road  
 APG, MD 21010-5403  
 DSN 584-2925  
 COM 410-436-2925, FAX 1016



# M295

## Individual Equipment Decontamination Kit (IEDK)

*U.S. Army Health Hazard Assessment &  
Toxicity Clearance Programs  
(AR 40-10 & 40-5)*

### Success Story

**System Description:** The M295 IEDK uses superior sorbent technology to replace the M280 liquid-based kit. The M295 consists of a pouch containing four individual mitts; each enclosed in a soft, protective packet. The packet is designed to fit comfortably in a pocket of the battle dress overgarment. Each mitt is comprised of A-200-SiC-1005 adsorbent resin contained within a non-woven polyester material and a polyethylene film backing. The mitt is worn on either hand and is equipped with a hook and loop fastener strap. When used, resin flows freely through the pad material. Decontamination of chemical warfare agents from equipment is accomplished through sorption of the agent by the non-woven polyester pad and the resin. The mitt is used to decontaminate chemical-biological protective masks, hoods, gloves, footwear, weapons, helmet, and load-bearing equipment while wearing chemical protective clothing.



**HHA & TC Program Support:** The Army HHA and TC Programs were asked to provide the Army Soldier Biological Chemical Command (SBCCOM) with a Health Hazard Assessment and Toxicity Clearance of two candidate sorbant materials proposed for use in the M295 IEDK. The candidate sorbants included KBB-SMP-01R and A-200-SiC-1005. Sorbant A-200-SiC-1005 was found to be considerably less toxic than KBB-SMP-01R and was recommended for use in the M295 IEDK. Sorbant A-200-SiC-1005 is cheaper than the current sorbant material used. This cooperative effort between USACHPPM and SBCCOM results in an almost 50% cost reduction for each 80-mitt box of M295 IEDKs. About 10,000 boxes of M295 IEDKs are purchased each year for a cost saving of \$2,790,000 per year for DoD.



**References:** Health Hazard Assessment Report (RCS MED 388) on the M295 IEDK with A-200-SiC-1005 Sorbant Material, Project No. 69-37-6798-99, June 1999, USACHPPM. AR 40-5, AR 40-10, AR 70-1, and DODR 5000.2-R.

**USACHPPM POC:** Mr. Robert Gross, DSN 584-2925, COM 410-436-2925, or E-mail: robert.gross@apg.amedd.army.mil.

### How to Request a Health Hazard Assessment (HHA) in Three Easy Steps

**Step 1:** Prepare an HHA request memorandum with...

- ◆ Your name, address, MACOM/MSC, and phone/ fax numbers, e-mail address
- ◆ System nomenclature
- ◆ Program category (ACAT)
- ◆ Purpose of the system
- ◆ System components
- ◆ Life cycle system phase
- ◆ Funds availability to support HHA on-site work (if necessary)
- ◆ System prototype (where/when)
- ◆ Purpose of HHA
- ◆ When HHA report is required
- ◆ For NDIs, describe the health standards applied in the product design and health problems that surfaced during testing and/or market investigation
- ◆ Number of planned systems and users/operators

**Step 2:** Enclose the following information (if available) with your request...

- ◆ Safety Assessment Report
- ◆ Human Factors Engineering Assessment
- ◆ Operational Requirements Documents
- ◆ Mission Need Statement
- ◆ System MANPRINT Management Plan
- ◆ Test and Evaluation Management Plan
- ◆ Detailed Test Plan
- ◆ Acquisition Strategy
- ◆ Independent Evaluation Plans
- ◆ TT/UT Test Reports
- ◆ Program Review Documentation
- ◆ Operational Mode Summary/Mission Profile
- ◆ Previous Health Hazard Assessment Reports
- ◆ Other Health Hazard Reports (i.e., commercial vendors, other military services, etc.)
- ◆ User Technical Manuals

### How To Request a Health Hazard Assessment (HHA) in Three Easy Steps

**Step 3:** Send your request...

#### **THRU**

Commander  
U.S. Army Materiel Command  
ATTN: AMCSG-H  
5001 Eisenhower Avenue  
Alexandria, VA 22333-0001

Telephone: COM 703-617-0241  
DSN 767-0241  
FAX 8558

#### **TO**

Commander  
USACHPPM  
U.S. Army HHA Program  
ATTN: MCHB-TS-OHH  
5158 Blackhawk Road  
APG, MD 21010-5403

Telephone: COM 410-436-2925  
DSN 584-2925  
FAX 1016

<http://chppm-www.apgea.army.mil/hha/>

**\*\* Send your request ASAP.** Early HHA Program involvement prevents last minute surprises or delays. Normally it takes 90 days from the date we receive a **complete request package** to prepare an HHA report.

## **U.S. Army Center for Health Promotion and Preventive Medicine**

### ***U.S. ARMY HEALTH HAZARD ASSESSMENT PROGRAM***

#### **POCKET GUIDE**



**Health Hazard Assessment Program  
ATTN: MCHB-TS-OHH  
5158 Blackhawk Road  
Aberdeen Proving Ground  
MD 21010-5403  
Telephone: COM 410-436-2925  
DSN 584-2925  
FAX 1016**

### The U.S. Army's Health Hazard Assessment Program

- ◆ The Army's Health Hazard Assessment (HHA) Program is designed to identify and eliminate or control health hazards associated with the life cycle management (LCM) of new and improved materiel and weapon systems. The HHA Program focuses on potential health hazards resulting from training, combat, and maintenance throughout a system's LCM.
- ◆ There may be several Health Hazard Assessment Reports (HHARs) completed throughout the LCM of a system to support milestone decision reviews, safety releases, materiel releases, etc. Developers, testers, evaluators, users, maintainers, logisticians, and disposers should use **all** of the HHARs to identify, control, eliminate, or minimize personnel exposures to health hazards.

- ◆ The Army's HHA Program supports the Army acquisition community's compliance with health assessment requirements contained in DOD and Army Regulations and Army Acquisition Executive MANPRINT Policy. The proponent is The Surgeon General (TSG) and  is TSG's Executive Agent.

#### For more detail:

- ◆ AR 40-10, The Health Hazard Assessment Program in Support of the Army Materiel Acquisition Decision Process.
- ◆ AR 602-2, Manpower and Personnel Integration (MANPRINT).
- ◆ AR 70-1, Army Acquisition Policy.
- ◆ U.S. Army Health Hazard Assessment Manual, Procedures Guide.
- ◆ DOD Regulation 5000.2-R, Mandatory Procedures for Major Defense Acquisition Programs (MADP) and Major Automated Information Systems (MAIS) Acquisition Programs.

### The MATDEV Perspective of How the HHA Process Works

- ◆ The MATDEV should initiate the HHA process during Phase 0: Concept Exploration.
- ◆ HHAs are to be done for all types of acquisitions to include materiel changes, nondevelopmental items, and new developments.

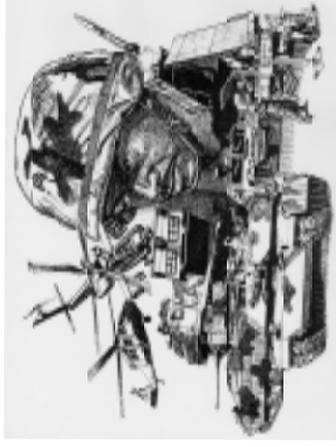
#### The Process

- ◆ **Identification of the potential health hazards.** In coordination with the developer, potential health hazards are identified and design guidance to eliminate or control the hazard are detailed in an initial Health Hazard Assessment Report (HHAR). Lessons learned from similar predecessor systems are retrieved from the HHA Program database and provided to the developer.
- ◆ **Early integration of health hazard concerns.** The IHHAR should inform the MATDEV about potential health hazards early in the acquisition process so that resources are programmed to address them. Also the information should be reflected in documents such as ORDs, RFPs and early design specifications. NDI programs should use the IHHAR to tailor market investigations.

- ◆ **Collection of health hazard data.** The developer is responsible for providing information to the medical assessor. The data may already exist, i.e., that from a predecessor or like system may be sufficient, or it may be acquired during developmental/technical (and sometimes user/operational) testing. The information from the IHHAR should be incorporated into test plans (e.g., Test and Evaluation Master Plan, and Detailed Test Plans) to acquire new data and provide testers with an awareness of potential system health hazards.

- ◆ **Assessment of health hazard data.** When the health hazard data are provided to the Army Medical Department's Independent Medical Assessors (IMAs), an assessment is performed. Often there are multiple health hazard issues; therefore, the expertise of people from several scientific and health disciplines is required. A matrix concept is employed to address multiple health issues. A team of IMAs is formed and coordinated by the Army HHA Program at USACHPPM. The product of this process is the Health Hazard Assessment Report (HHAR) that meets the requirements of DODR 5000.2-R, AR 40-10, AR 70-1, and AR 602-2.

- ◆ **Allow sufficient time for the HHA.** The HHA process requires interaction between developer, tester, and matrixed AMEDD communities and should occur throughout the life cycle of a development program. AR 40-10 indicates that **90 days are required to produce a formal HHAR**; this time allows the interaction of multiple scientific and health specialists. The 90-day period starts when all the health hazard information is available to the Independent Medical Assessor (IMA). If data are missing the report can be delayed.



### Health Hazard Categories Addressed by the Army HHA Program

- Acoustic Energy
- Biological Substances
- Chemical Substances
- Oxygen Deficiency (ventilation)
- Radiation Energy
- Shock
- (Rapid acceleration/deceleration)
- Temperature Extremes & Humidity
- Trauma
- Vibration
- (Wholebody & Segmental)



## ***FY 00 MANPRINT Training Schedule***



### **MANPRINT ACTION OFFICER COURSE (MAOC)**

| <u><b>CLASS</b></u> | <u><b>START DATE</b></u> | <u><b>END DATE</b></u> | <u><b>LOCATION</b></u> |
|---------------------|--------------------------|------------------------|------------------------|
| 00-002              | 07 Aug 00                | 17 Aug 00              | ALMC, FORT LEE, VA     |
| 00-701              | 16 May 00                | 25 May 00              | FORT LEONARD WOOD, MO  |
| 00-702              | 22 Aug 00                | 31 Aug 00              | REDSTONE ARSENAL, AL   |
| 00-703              | 21 Mar 00                | 30 Mar 00              | FORT KNOX, KY          |
| 00-704              | 29 Feb 00                | 09 Mar 00              | FORT SAM HOUSTON, TX   |

### **MANPRINT TAILORED TRAINING (APPLICATIONS COURSE)**



| <u><b>CLASS</b></u> | <u><b>START DATE</b></u> | <u><b>END DATE</b></u> | <u><b>LOCATION</b></u>                         |
|---------------------|--------------------------|------------------------|--|
| 00-001              | 08 May 00                | 10 May 00              | ALMC, FORT LEE, VA                             |
| 00-701              | 27 Jun 00                | 29 Jun 00              | INDUSTRIAL OPERATIONS<br>COMMAND               |
| 00-702              | 01 Aug 00                | 03 Aug 00              | US ARMY TANK AUTOMOTIVE<br>COMMAND, WARREN, MI |
| 00-703              | 16 Nov 99                | 18 Nov 99              | FORT BLISS, TX                                 |
| 00-704              | 18 Apr 00                | 20 Apr 00              | FORT HUACHUCA, AZ                              |

(POC: Mr. Len Girling, COM (804) 765-4361, DSN 539-4361)

## MANPRINT INFORMATION

Articles, comments, and suggestions are welcomed. Submit to: MANPRINT Quarterly, HQDA (DAPE-MR), 300 Army Pentagon, Washington, DC 20310-0300; DSN 225-7035, COM (703) 695-7035, FAX (703) 697-1283, E-mail: [margaret.simmons@hqda.army.mil](mailto:margaret.simmons@hqda.army.mil)

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**POLICY:** Department of the Army, ODCSPER, ATTN: DAPE-MR, 300 Army Pentagon, Washington, DC 20310-0300, DSN 225-7035, COM (703) 695-7035.

**DIRECTORY OF DESIGN SUPPORT METHODS:** Defense Technical Information Center–MATRIS Office, DTIC-AM, 53355 Cole Road, San Diego, CA 92152-7213, DSN 553-7006, COM (619) 553-7006, E-mail: [ddsm@dticam.dtic.mil](mailto:ddsm@dticam.dtic.mil), and World Wide Web: <http://dticam.dtic.mil/hsi/>

### MANPRINT DOMAIN POCs:

#### MANPOWER, PERSONNEL & TRAINING:

Mr. Steve Dwyer, U.S. Army Training and Doctrine Command, ATTN: ATCD-RP, Fort Monroe, VA 23651-5000, DSN 680-3477, COM (757) 727-3477, FAX: 680-3477, E-mail: [dwyers@monroe.army.mil](mailto:dwyers@monroe.army.mil). Ms. Denise Y. McCauley, U.S. Total Army Personnel Command, ATTN: TAPC-PLC-M, 200 Stovall Street, Alexandria, VA 22332-0406, DSN 221-2024, COM (703) 325-2024, FAX: xxx-0657, E-mail: [mccauley@hoffman.army.mil](mailto:mccauley@hoffman.army.mil)

**HUMAN FACTORS ENGINEERING:** Dr. Edwin R. Smootz, Chief, Human Factors Integration Division, HRED, Army Research Laboratory, ATTN: AMSRL-HR-MV, Aberdeen Proving Ground, MD 21005-5425, DSN 298-5817, COM (410) 278-5817, FAX: 298-8823, E-mail: [esmootz@arl.mil](mailto:esmootz@arl.mil)

**SYSTEM SAFETY:** Mr. Dwight Lindsey, U.S. Army Safety Center, ATTN: CSSC-OR, Fort Rucker, AL 36362-5363, DSN 558-1373, COM (334) 255-1373, FAX: 558-9528, E-mail: [lindseyd@safety-emh1.army.mil](mailto:lindseyd@safety-emh1.army.mil)

**HEALTH HAZARDS:** Mr. Mike McDevitt or Mr. Bob Gross, U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), ATTN: MCHB-TS-OHH, Aberdeen Proving Ground, MD 21010-5403, DSN 584-2925, COM (410) 436-2925, FAX: 436-1016, E-mail: [w.michael.mcdevitt@apg.amedd.army.mil](mailto:w.michael.mcdevitt@apg.amedd.army.mil) or [robert.gross@apg.amedd.army.mil](mailto:robert.gross@apg.amedd.army.mil)

**SOLDIER SURVIVABILITY:** Mr. Richard Zigler, U.S. Army Research Laboratory, ATTN: AMSRL-SL-BE, Aberdeen Proving Ground, MD 21005-5068, DSN 298-8625, COM (410) 278-8625, FAX: 278-9337, E-mail: [rzigler@mail.arl.mil](mailto:rzigler@mail.arl.mil)

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Bob Holz

Acting Director for Personnel Technologies

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The MANPRINT Quarterly is an official bulletin of the Office of the Deputy Chief of Staff for Personnel (ODCSPER), Department of the Army. The Manpower and Personnel Integration (MANPRINT) program (AR 602-2) is a comprehensive management and technical initiative to enhance human performance and reliability during weapons system and equipment design, development and production. MANPRINT encompasses the seven domains of personnel capabilities, manpower, training, human factors engineering, system safety, health hazards and soldier survivability. The focus of MANPRINT is to integrate technology, people, and force structure to meet mission objectives under all environmental conditions at the lowest possible life-cycle cost. Information contained in this bulletin covers policies, procedures, and other items of interest concerning the MANPRINT Program. Statements and opinions expressed are not necessarily those of the Department of the Army. This bulletin is prepared quarterly under contract for the Personnel Technologies Directorate, Office of the Deputy Chief of Staff for Personnel under the provisions of AR 25-30 as a functional bulletin.

## READER'S RESPONSE

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