THE ASSISTANT SECRETARY OF DEFENSE
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WASHINGTON DC 20301 1200

HEALTH AFFAIRS

AUG 28 2007

The Honorable Carl Levin
Chairman, Committee on Armed Services
United States Senate
Washington, DC 20510-6050

Dear Mr Chairman.

This letter provides the 2007 Report to Congress on the requirement for a Department of Defense (DoD) annual report on Force Health Protection Quality Assurance (FHPQA), as directed by 10 U S C Section 1073b(a), as added by Section 739 of the National Defense Authorization Act for Fiscal Year 2005

I am pleased to report that 94 percent of Service members who returned from deployments in 2006 rated their overall health from good to excellent Additionally, 56 percent indicated no health concerns at the time of their post-deployment health assessment These rates represent moderate, but tangible improvements over those identified in last year's report (at 92 and 55 percent, respectively)

The enclosed report addresses specific FHPQA activities during calendar year 2006 These activities include deployment health quality assurance (DHQA) visits to military installations, and the associated reviews of over 600 medical records of Service members for deployment-related health documentation such as health assessments, referrals, and immunizations The report also provides information on DHQA data maintained in the central database of the Defense Medical Surveillance System, and describes highlights from the military Services' DHQA programs in 2006 In addition, data and analyses on post-deployment health concerns of over 190,000 Service members are provided, along with synopses of deployment-related occupational and environmental exposure events, details on 425 operational health risk assessment reports, and information on the more than 2,000 Service members monitored under the DoD Depleted Uranium Bioassay Program

I remain strongly committed ensuring that our Service members receive the quality health care and force health protection they so richly deserve—before, during, and after deployment

Thank you for your continued support of the Military Health System

Sincerely,

S Ward Casscells, MD

Enclosures
As stated

cc
The Honorable John McCain
Ranking Member

Report on the

Department of Defense Force Health Protection Quality Assurance Program

In Response to the

Ronald Reagan National Defense Authorization Act for Fiscal Year 2005 (Section 739)

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BACKGROUND

The Department of Defense (DoD) is required to report annually to Congress on Force Health Protection Quality Assurance, per 10 U S C section 1073b(a), as added by section 739 of the Ronald W Reagan National Defense Authorization Act (NDAA) for Fiscal Year 2005 Topics include maintenance of deployment health assessments in the Defense Medical Surveillance System, storage of blood samples in the DoD Blood Serum Repository, and health assessment data in military health records, as well as actions taken in response to post-deployment health concerns and deployment-related exposures to occupational or environmental hazards This is the Department's 2007 report, which covers calendar year (CY) 2006 activities and builds upon our report submitted in November 2006

DEPLOYMENT HEALTH QUALITY ASSURANCE PROGRAM

The DoD formally initiated the Deployment Health Quality Assurance (DHQA) program in January 2004 through an Assistant Secretary of Defense (Health Affairs) (ASD (HA)) policy memorandum The DHQA program has been developed under the direction of the Deputy Assistant Secretary of Defense for Force Health Protection and Readiness and is overseen by the Force Health Protection and Readiness Programs (FHP&RP) office The program supports force health protection and surveillance requirements associated with current military deployments

As specified in DoD Directive 6200 4, "Force Health Protection," and DoD Directive 6490 2, "Comprehensive Health Surveillance," the ASD (HA) has both the authority and the responsibility for monitoring force health protection and surveillance implementation, and for ensuring that quality assurance programs are in place The DHQA program encompasses three key elements in addition to an annual report (1) periodic joint visits to military installations to assess compliance with deployment health requirements, (2) periodic reports from the military Services on their respective deployment health quality assurance (QA) programs; and (3) periodic reports from the Army Medical Surveillance Activity (AMSA) on deployment health assessment data maintained centrally in the Defense Medical Surveillance System (DMSS)

DHQA VISITS TO MILITARY INSTALLATIONS

In CY2006, staff from Health Affairs and the Services' medical departments jointly planned, coordinated, and conducted the following DHQA visits to military installations The Navy visit was not conducted on-site, but instead was accomplished "virtually" through a review of deployment health-related data in the DMSS

- Army Fort Bragg (March 20–23, 2006)
- Marine Corps Camp Lejeune (May 31–June 1, 2006)
- Air Force· Travis Air Force Base (October 24–25, 2006)
- Navy Navy Mobile Construction Battalion 133 (December 2006)

The visits generally included in-and out-briefings with commanders and senior medical leaders, discussions of deployment health processing activities and issues, and reviews of individual medical records for documentation of deployment health-related information (including required pre- and post-deployment health assessments, immunizations, abbreviated/deployable medical record forms, care received in-theater, and recommended follow-up referral care) In conjunction with each visit, FHP&RP partnered with the Army Medical Surveillance Activity to review the databases of the DMSS and the DoD Serum Repository (DoDSR) for centrally maintained documentation of both pre- and post-deployment health assessments and serum specimens New DHQA visit activities for 2006 included the virtual visit (central database review) for the Navy Seabees, the review of Reserve Component personnel at Travis Air Force Base, and the review of responses to mental health questions on the Post-Deployment Health Assessment (DD Form 2796)

Significant findings from the 2006 DHQA installation visits, including medical record reviews and central database reviews, are displayed in the following table

2006 FHP&RP Joint Installation Visits Deployment Health Quality Assurance Program				
	Fort Bragg	**Camp Lejeune**	**Travis Air Force Base***	**NMCB 133 (Seabees)****
Deployed Service members	169	151	106AC / 42RC	150
Medical Record Review				
Abbrev/Dep Medical Record	89%	99%	99% / 100%	na
Pre-Dep Health Assessment	84%	86%	98% / 95%	na
Post-Dep Health Assessment	86%	99%	99% / 98%	na
Immunizations***	87%	95%	99% / 96%	70%
In-Theater Health Care	25%	81%	67% / 86%	03%
Referral Care in Medical Record	14%	84%	36% / 89%	65%
DMSS & DoDSR Review:				
Pre-Dep Health Assessment	94%	79%	97% / 79%	95%
Post-Dep Health Assessment	91%	36%	98% / 83%	87%
Pre-Deployment Blood Serum	98%	92%	98% / 95%	85%
Post-Deployment Blood Serum	96%	99%	96% / 50%	97%
DD2796 (MH Review):****				
Q #10 (assistance)	03%	04%	01% / 00%	02%
Q #11 (depression)	20%	26%	09% / 17%	19%
Q #12 (stress)	25%	15%	03% / 17%	12%
Q #13 (loss of control)	06%	07%	00% / 07%	04%
Mental Health counseling sought	04%	02%	00% / 00%	06%

* Findings shown separately for active component and reserve component
** Reviewed centrally-maintained DMSS data, no on-site medical records review
*** Immunization requirements include Hepatitis A, Tetanus-Diphtheria, Typhoid, PPD Test, Smallpox, and Influenza
**** Service members with positive responses to mental health questions on DD 2796.

Following are some general observations associated with the DHQA installation visits conducted in 2006

- Copies of pre- and post-deployment health assessments were generally found in quite high percentages in both the medical record and the central DMSS database These assessments were accomplished in electronic format for virtually all the reviewed Army and Air Force individuals and for increasingly significant numbers of Navy and Marine Corps personnel Documentation of post-deployment health reassessments was not checked universally during 2006 DHQA visits due to variations in Services' implementation status

- Documentation of required immunizations was found to be quite good and the vast majority of required blood serum samples were found on file at the central DoD Serum Repository

- The documentation of in-theater care in the permanent medical record varied quite widely, possibly reflecting the varying stages of development and availability of theater automated health encounter systems, as well as the overall transition status from paper to automated medical records

- Documentation of post-deployment referral care was varied, perhaps indicative of improvements in health status following referral or by individuals subsequently deciding not to seek follow-up care

- The responses to mental health questions on the post-deployment health assessments appeared to mirror the more direct combat roles of Army and Marine Corps personnel

- The overall findings for the active duty and reserve units at Travis AFB were generally comparable, although the latter lagged somewhat in availability of deployment health assessments and serum samples in the central repository

- Accomplishment of a virtual visit for the Navy Seabee unit provided some comparable indicators of deployment health compliance at a lower level of effort compared to on-site visits, tempered by the current inability to review either the paper or a fully automated medical record

MILITARY SERVICES' REPORTS ON THEIR DHQA PROGRAMS

The military Services continued to conduct DHQA programs that monitor key elements yet are tailored in scope, focus, and methodology to each of their respective organizational structures and operational environments Common program elements generally tracked by all Services include identification of deployed and those who have returned from deployment, documentation of deployment health assessments (in individual health records and the central DMSS database); drawing of deployment blood serum samples, and completion of post-deployment referrals for follow-up care

The Services provided quarterly reports to OASD(HA) on the status and findings of their respective DHQA programs Following are highlights from the 2006 reports

Army

- The Army's DHQA program continues to be managed by the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) The program has been centralized, committed to process improvement, and focused upon on-site reviews rather than periodic reporting The Army Medical Command Inspector General (MEDCOM IG) office also conducts limited assessments of pre-and post-deployment activity (through medical records reviews) during some scheduled visits to Army installations

- In 2006, USACHPPM team members conducted DHQA visits to six Army installations Fort Bragg, Fort Drum, Camp Shelby (Army National Guard Soldier Readiness Processing Center), Wiesbaden Clinic and Kleber Clinic (Germany), and the US Army Corps of Engineers Deployment Center (Winchester, Va) With the exception of Kleber Clinic (courtesy visit), the deployment health-related activities for each site included reviews of medical records and the DMSS database Findings were as follows

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ARMY 2006 DEPLOYMENT HEALTH QA DATA						
	Fort Bragg Main SRC	**Fort Bragg 82nd SRP**	**Fort Drum**	**Camp Shelby**	**Wiesbaden Germany**	**USACE Center**
Sample Size	234	50	173	30	155	31
DD2766 in Med Rcd	95%	40%	80%	100%	48%	00%
DD2795 in Med Rcd	82%	40%	97%	97%	92%	87%
DD2796 in Med Rcd	81%	64%	97%	97%	71%	83%
Theater Care in Rcd	28%	44%	46%	100%	--	--
DD2795 in DMSS	97%	70%	100%	100%	95%	--
DD2796 in DMSS	96%	62%	100%	100%	94%	--
Pre-Dep Serum	98%	82%	100%	100%	96%	--
Post-Dep Serum	69%	50%	100%	100%	92%	--

- Best practices identified during these visits include establishment of a medical center Deployment Health Department, development of a tracking system for each soldier processed through the Soldier Readiness Center, and assignment of medical representatives to an installation's Mobilization Processing Unit

- The MEDCOM IG audited a sample of 163 medical records from five sites in 2006 and reported overall compliance rates of 64 percent for DD Form 2795 and 58 percent for DD Form 2796 The major cause for these relatively low rates was attributed to the absence of quality control processes at one site

Navy

- The Navy's Fleet Post-Deployment Health Quality Assurance Program is operated under the aegis of Combined Fleet Forces Command (CFFC) and monitored by the Navy Environmental Health Center (NEHC) The program requires that operational units incorporate the tracking and reporting of various deployment health data elements into their overall command quality assurance activities Units are required to collect and forward deployment health data within 90 days of returning from deployment through CFFC channels to NEHC for analysis and subsequent reporting to the Bureau of Medicine and Surgery

- The following deployment health data were reported by the Navy for 2006, focusing on the post-deployment health assessments since pre-deployment assessments are not required for strictly shipboard deployments

NAVY 2006 DEPLOYMENT HEALTH QA DATA		
CATEGORY	**NUMBER**	**PERCENTAGE**
Personnel Returned from Deployment	15,473	
DD2796, Post-Deployment Health Assessment, in Record	14,992	97%
Post-Deployment Blood Draw	13,812	89%
Personnel Requiring Referral	312	02%
Personnel Completing Initial Referral	215	91%
DD2796 Sent to DMSS	9,387	63%

- The Navy implemented automated deployment health assessment forms in 2006 and worked through some data interface incompatibility issues that occasionally delayed the entry of these forms into the DMSS database

Air Force

- The Air Force Deployment Health Quality Assurance Program continued to incorporate centralized guidance from the Air Force Surgeon General's office and reporting through major command channels, along with deployment health surveillance checklist items by Health Services Inspection teams

- Throughout 2006, the Air Force continued initiatives to more fully integrate the deployed personnel tracking system (Deliberate Crisis Action Planning and Execution Segment, (DCAPES) and the medical monitoring system (Preventive Health Assessment and Individual Medical Readiness, (PIMR)

- Deployment health data reported by the Air Force in 2006 are as follows

AIR FORCE 2006 DEPLOYMENT HEALTH QA DATA		
CATEGORY	**NUMBER**	**PERCENTAGE**
Personnel Deployed	52,008	
DD2795 Completed	44,409	85%
Pre-Deployment Serum Completed	40,165	77%
Personnel Returned from Deployment	55,878	
DD2796 Completed	44,879	80%
Post-Deployment Serum Completed	38,920	70%
Post-Deployment Referral Indicated	3,232	07%
Post-Deployment Referral Completed	1,210	37%

- The Air Force explained that compliance rates were low due to discrepancies between the number of deployers tracked by the DCAPES personnel system and the number monitored by the PIMR medical system An initiative is underway for base-level medical, personnel, and readiness offices to reconcile deployment rosters and accurately identify deployment health requirements

Marine Corps

- The Marine Corps DHQA Program places responsibility for compliance with commanders and command medical personnel Units incorporate tracking of deployment health data elements into their overall quality assurance programs Similar to the Navy's program, deployment health data are reported through the chain of command to the Navy Environmental Health Center for analysis and subsequent reporting to HQ Marine Corps Health Services

- The following Marine Corps deployment health data were reported in 2006

MARINE CORPS 2006 DEPLOYMENT HEALTH QA DATA		
CATEGORY	**NUMBER**	**PERCENTAGE**
Personnel Deployed	73,027	
DD2795 Completed	55,450	76%
DD2795 Sent to DMSS	48,203	66%
Personnel Returned from Deployment	56,199	
DD2796 Completed	52,705	94%
DD2796 Sent to DMSS	51,081	91%
Post-Deployment Serum Collected	54,224	96%
Post-Deployment Referrals Indicated	4,890	09%
Post-Deployment Referrals Completed	1,916	39%

- The Marine Corps noted that implementation of electronic deployment health assessment forms and an automated Medical Readiness Reporting System in 2006 facilitated the tracking of data for DHQA compliance Timely insertion of DD Forms 2795 and 2796 into the DMSS database was periodically hindered by data formatting issues, and the number of deployed personnel may have been overstated due to the inclusion of Marines already in theater at the beginning of quarterly reporting periods

DEFENSE MEDICAL SURVEILLANCE SYSTEM DHQA REPORTS

Throughout CY2006, the military Services continued to submit copies of pre-deployment health assessment forms (DD 2795) and post-deployment health assessment forms (DD 2796) in electronic or (rarely) paper format to the Army Medical Surveillance Activity (AMSA), where the data were entered into the Defense Medical Surveillance System (DMSS) AMSA provides weekly reports on a variety of post-deployment health assessment data, and prepares more extensive periodic analyses on both pre- and post-deployment health assessments The following tables show data from the CY2006 AMSA summary report on DD Forms 2796 on file in the DMSS for Service members returning from any military deployment

TOTAL FORCE POST-DEPLOYMENT HEALTH ASSESSMENTS: 2006					
	ARMY	**NAVY**	**USAF**	**USMC**	**TOTAL**
Members with DD 2796	168,986	19,904	65,135	31,035	**285,060** *
Electronic DD 2796 **	100%	55%	100%	79%	**95%**
Health "Good Excellent"	92%	95%	98%	94%	**94%**
Medical/Dental Problems	37%	18%	13%	20%	**28%**
Currently on Profile	13%	01%	02%	02%	**08%**
Mental Health Concerns	08%	03%	01%	03%	**06%**
Exposure Concerns	22%	09%	05%	08%	**16%**
Health Concerns	26%	09%	11%	09%	**19%**
Referral Indicated	27%	13%	11%	15%	**21%**
Follow-up Med Visit ***	99%	76%	86%	68%	**91%**
Post-Deployment Serum	94%	86%	90%	89%	**92%**

* Service members with DD 2796 on file from all deployments in 2006

** Calculated for DD Forms 2796 completed since June 1, 2006

*** An inpatient or outpatient visit within six months after referral

Source AMSA CY2006 DD Form 2796 summary report dated June 26, 2007

ACTIVE DUTY POST-DEPLOYMENT HEALTH ASSESSMENTS: 2006					
	ARMY	**NAVY**	**USAF**	**USMC**	**TOTAL**
Members with DD 2796	113,431	15,741	51,184	28,389	**208,745**
Electronic DD 2796 *	100%	64%	100%	78%	**94%**
Health "Good/Excellent"	93%	96%	98%	94%	**95%**
Medical/Dental Problems	31%	13%	12%	18%	**23%**
Currently on Profile	11%	01%	02%	02%	**07%**
Mental Health Concerns	08%	03%	01%	03%	**06%**
Exposure Concerns	18%	05%	05%	06%	**12%**
Health Concerns	21%	06%	09%	08%	**15%**
Referral Indicated	26%	12%	11%	14%	**20%**
Follow-up Medical Visit **	99%	74%	94%	68%	**94%**
Post-Deployment Serum	95%	85%	94%	89%	**93%**

* Calculated for DD Forms 2796 completed since June 1, 2006

** An inpatient or outpatient visit within six months after referral

Source AMSA CY2006 DD Form 2796 summary report dated June 26, 2007

RESERVE COMPONENT POST-DEPLOYMENT HEALTH ASSESSMENTS: 2006					
	ARMY	**NAVY**	**USAF**	**USMC**	**TOTAL**
Members with DD 2796	55,555	4,163	13,951	2,646	76,315
Electronic DD 2796 *	100%	23%	100%	86%	95%
Health "Good/Excellent"	90%	90%	982%	94%	92%
Medical/Dental Problems	50%	36%	15%	38%	43%
Currently on Profile	16%	03%	02%	02%	12%
Mental Health Concerns	09%	04%	01%	04%	07%
Exposure Concerns	31%	25%	07%	26%	26%
Health Concerns	35%	21%	18%	25%	31%
Referral Indicated	29%	16%	11%	23%	25%
Follow-up Medical Visit **	98%	85%	57%	63%	93%
Post-Deployment Serum	93%	90%	73%	90%	89%

* Calculated for DD Forms 2796 completed since June 1, 2006

** An inpatient or outpatient visit within six months after referral

Source AMSA CY2006 DD Form 2796 summary report dated June 26, 2007

Based on the post-deployment health assessment data in the above tables for Service members who returned from deployment in the 12 months from January through December 2006

- Approximately 94 percent of Service members who returned from deployment reported their health as good, very good, or excellent
- Approximately 19 percent of Service members who returned from deployment reported having some health concerns or questions
- Approximately 6 percent of Service members who returned from deployment reported they had sought or intended to seek mental health counseling or care
- Health referrals were indicated for approximately 21 percent of Service members who returned from deployment, with approximately 91 percent of those individuals having an inpatient or outpatient visit within six months after referral
- Army and Marine Corps personnel typically demonstrated higher rates of post-deployment health and exposure concerns, which quite possibly reflect their more direct roles in combat and combat-related operations
- Reserve component Service members generally expressed more concerns about their post-deployment health than did active duty members

DEPLOYMENT HEALTH QA PROGRAM SUMMARY

The DoD DHQA Program continues to be a critical component of the Department's commitment to comprehensive force health protection In 2006, we were encouraged by the generally high quality of deployment documentation in medical records, while noting continuing improvement opportunities in the use of automated information and documentation of in-theater health care For visits in 2007, we envision incorporating the post-deployment health reassessments along with Reserve Component Service members, DoD civilians, and deployment personnel rosters maintained by the Defense Manpower Data Center The military Services' deployment health quality assurance reports continue to provide snapshots of both progress made and challenges encountered As the individual programs and various associated information systems continue to mature, it is possible that reporting frequency could change from quarterly to semi-annually, while the focus would shift toward monitoring of automated data The routine and ad hoc deployment health reports prepared from the DMSS have been instrumental in documenting trends for key deployment health indicators and differentiating results among the military Services, their active and reserve components, and use of electronic versus paper-based assessment forms We anticipate incorporation of the deployment health QA elements into the more comprehensive Force Health Protection Quality Assurance Program because we published the DoD Instruction 6200 05 on February 16, 2007

POST-DEPLOYMENT HEALTH CONCERNS

Responsiveness to post-deployment health concerns was determined through analysis of information on the four-page Post-Deployment Health Assessment, copies of which are maintained in the DMSS electronic database During the post-deployment health assessment process, health care providers conduct face-to-face interviews with all returning Service members and document their responses to the following questions

- Do you currently have any questions or concerns about your health? *(General)*
- During this deployment have you sought, or do you now intend to seek, counseling or care for your mental health? *(Mental Health Concerns)*
- Do you have concerns about possible exposures or events during this deployment that you feel may affect your health? *(Exposure Health Concerns)*

Positive responses to any of the above three deployment health questions were identified, along with responses to four specific mental health-related questions Defense Medical Surveillance System data also identified provider-recommended referrals, as well as the number and timeliness of Service members seen for follow-up care in the Military Health System The following tables depict DMSS data for post-deployment health assessments accomplished by over 191,000 Service members returning from deployments directly in support of Operation Iraqi Freedom (OIF) or Operation Enduring Freedom (OEF) in CY 2006.

Summary of OIF/OEF Post-Deployment Health Assessments in CY2006			
205,645 Post-Deployment Health Assessments	**General Health Concerns**	**Mental Health Concerns**	**Exposure Concerns**
Health Concerns Indicated	33,871 (18%)	66,403 (35%)	35,099 (18%)
Follow-up Referrals Indicated	22,310 (12%)	31,083 (16%)	24,616 (13%)
Individuals Seen < 90 Days	93%	88%	94%

General Health Concerns (OIF/OEF CY2006)

Branch of Service	Health Assessments	General Health Concerns	Referred for Care	Seen within 90 Days
Army	126,369	27,839	19,958	96%
Navy	5,164	750	324	70%
Air Force	45,831	3,881	1,233	72%
Marines	13,972	1,401	795	47%
Total	191,336	33,871 (18%)	22,310 (12%)	93%

Mental Health Concerns (OIF/OEF CY2006)

Branch of Service	Health Assessments	Mental Health Concerns	Referred for Care	Seen within 90 Days
Army	126,369	54,439	27,857	93%
Navy	5,164	1,345	410	50%
Air Force	45,831	5,425	1,530	67%
Marines	13,972	5,194	1,296	18%
Total	191,336	66,403 (35%)	31,083 (16%)	88%

Exposure Health Concerns (OIF/OEF CY2006)

Branch of Service	Health Assessments	Exposure Concerns	Referred for Care	Seen within 90 Days
Army	126,369	30,925	22,582	96%
Navy	5,164	863	271	75%
Air Force	45,831	2,234	1,319	75%
Marines	13,972	1,077	444	47%
Total	191,336	35,099 (18%)	24,616 (13%)	94%

Following are some key findings regarding post-deployment health concerns

- Approximately 56 percent (107,531) of the 191,336 Service members indicated no post-deployment health concerns, per their negative responses to the seven questions

- Service members appear to indicate more post-deployment concerns about their mental health (35 percent) than about general health (18 percent) or exposures (18 percent) The larger mental health response rate is the result of asking AMSA to report Service member responses for four additional mental health questions in the individual section whereas there is only one general health, mental health or exposure question asked during the health care provider section of the DoD from 2796.

- Service members for whom referrals were indicated received follow-up care within 90 days in the military health system at a greater rate for general health or exposure concerns (93–94 percent) than for mental health concerns (88 percent)

DEPLOYMENT-RELATED EXPOSURES

Deployment Occupational and Environmental Health Surveillance

The DoD continues to support our deployed forces with comprehensive occupational and environmental health (OEH) monitoring to identify, control, and document potentially hazardous exposures to deployed DoD personnel This includes pre-deployment OEH assessments, deployment (operational) OEH field assessments, and archiving associated OEH documentation for future use and retrospective analyses These efforts are largely led by key preventive medicine organizations of the various Services. USACHPPM, the Air Force Institute of Occupational Health (AFIOH), and the Navy Environmental Health Center (NEHC) As the designated DoD OEH data repository, the USACHPPM has initiated specific efforts for personnel and health care providers to have ready access to known exposure and health outcome information pertaining to unique locations or exposure incidents The information provided in this report summarizes the information submitted by the US Central Command to the USACHPPM Deployment OEH Data Repository

Summary of 2006 Assessments and Findings

Pre-Deployment OEH Assessments. From April 2006 through March 2007, the USACHPPM produced and disseminated 37 pre-deployment OEH assessments for specific locations in the following geographic combatant commands (COCOMs) US Central Command (USCENTCOM), US European Command (USEUCOM), US Northern Command (USNORTHCOM), and US Southern Command (USSOUTHCOM)

The deployment threats, hazards, and potential health risks assessed with these deployments were associated with industrial chemicals, historically hazardous waste contamination, radiation, infectious disease, insect disease vectors, weapons of mass destruction, unexploded ordnance, and other specific threats identified through operational pre-deployment planning Pre-deployment assessment supports planning for appropriate avoidance, protection, and countermeasures by deployed forces

Deployment OEH Risk Assessments In 2006, the USACHPPM completed 425 OEH operational risk management reports supporting deployments These reports identify risks to deployed forces by assessing the analytical results of thousands of air, water, and soil samples from over 25 countries world-wide in all geographic COCOMs Over 75 percent of these OEH risk assessments were accomplished in support of OIF

Greater than 80 percent of the 2006 OEH risk assessment reports were categorized as "Low Risk" to operational readiness While operational impact is driven by the acute (immediate) effects caused by a hazard (per guidance provided by the National Academy of Sciences in 2004), the potential for long-term delayed health effects also is evaluated and reported–particularly for post-deployment medical surveillance purposes Though possibilities of some mild temporary acute health effects have been identified during the CY 2006, none of the exposures occurring in 2006 that were reported to USACHPPM are believed to specifically increase the risk of long-term health effects, including cancer, in deployed Service members

The CY 2006 OEH assessments that were deemed "Moderate Risk" (68) or "High Risk" (11) were due mainly to anticipated temporary acute health effects from airborne particulate matter or to conditions of water supplies The water supplies assessed were identified primarily for personal hygiene use (e g , showering), not for consumption, and can be adequately treated by filtration or chlorination before use Treatment mitigates potential for acute gastrointestinal health effects and thus mitigatess the risk

Specific Occupational and Environmental Health Deployment Events

The following summaries involving actual or potential exposures for US Service members describe some of the OEH incidents that have been reported and monitored since the 2006 Report to Congress Some incidents are still under evaluation The following incidents include location-specific as well as regional or theater-wide summaries of certain hazard-specific concerns with possible OEH-related problems

Sulfur Mustard Chemical Agent Incident (March 11, 2007)

Three Service members from an explosive ordnance disposal (EOD) company and an engineering battalion encountered an unexploded munition in the vicinity of Taji, Iraq, while on route clearing activities On March 12, the Service members began to notice blisters and irritation on their lower torsos and reported to the Camp Taji Medical Clinic for decontamination and treatment Individual chemical agent monitor samples were taken, one reading was positive for blister agent Later on March 12 and 13, the Service members reported to their base camp where they were again decontaminated, and their clothing tested for chemical agent The clothing tested positive for mustard (blister) agent, and blood and urine samples were taken for laboratory analyses Each of the personnel was diagnosed with exposure to a chemical agent Though long-term health consequences of these exposures are not anticipated, the USACHPPM has been working with the USCENTCOM to coordinate any future surveillance measures necessary for those exposed

Chlorine Exposure Incidents (2006-2007)

On November 14, 2006, four US Explosive Ordnance Detachment (EOD) personnel conducted detonation activities on a cache of compressed gas cylinders in the Baghdad region The EOD personnel originally assumed that the tanks contained acetylene After the controlled detonation, all of these EOD personnel experienced symptoms consistent with chlorine gas exposure and concluded that the tanks contained chlorine The Service members received medical care, were placed under observation for a short time, and released once symptoms were resolved

On March 16, 2007, a vehicle-borne (truck) improvised explosive device detonated in the vicinity of Ramadi, Iraq The truck contained several containers of chlorine gas, and one Service member experienced symptoms of chlorine exposure

On March 16, 2007, a second chlorine exposure incident occurred when a suicide vehicle-borne improvised explosive device (SBVIED) detonated in the vicinity of Al Fallujah, Iraq The SBVIED was loaded with a one-ton chlorine tank and explosives Upon detonation, chlorine gas from the one-ton tank was released Six Service members were exposed to chlorine gas while rendering aid to wounded Iraqi civilians All six Service members involved in this incident received medical treatment and subsequently returned to duty

Exposure to chlorine that does not result in substantial pulmonary injury at time of exposure is not anticipated to have long-term health consequences While information provided to USACHPPM does not specifically indicate that US Service members have experienced substantial pulmonary injury from any of the chlorine incidents, efforts are being made to obtain any additional incident data to include identifying all the exposed US personnel

Update on Events from the Previous Report

Al Mishraq Sulfur Plant, Iraq (June-July 2003)

Of all the incidents previously reported in this annual report to Congress, only the 2003 Al Mishraq Sulfur Plant fire has been identified as an exposure incident that may result in health consequences of concern The fire at the Al Mishraq Sulfur Plant burned for approximately three weeks during June-July 2003 The resulting smoke plume contained varying concentrations of sulfur dioxide (SO_2) and hydrogen sulfide (H_2S) Both SO_2 and H_2S are known acute respiratory irritants, and SO_2 has been associated with pulmonary disease Though field sampling data are limited, satellite photos and reported odors at the Q-West Base Camp and Life Support Area,
25 kilometers away, indicate that for certain periods during the fire some level of exposure occurred to personnel in the Q-West vicinity Exposure levels experienced by Service members are assumed to have been quite variable depending on location and date Exposures were probably highest to the 191 personnel who fought the fire Other significant exposures may have been experienced by US personnel securing the perimeter of the Mishraq Plant or evacuating nearby local civilians At the time of the fire, it was believed that no US personnel had experienced exposures to contaminants in the smoke that would place them at risk of long-term health effects

Recently, 42 Service members currently assigned to Fort Campbell, Ky , reported unexplained shortness of breath on exertion and had been referred by the installation hospital to a pulmonary specialist at Vanderbilt Medical Center All but one of these individuals reported being in the vicinity of Q-West Base Camp in 2003 and experienced exposure to the sulfur fire smoke Two of the 41 personnel reporting exposure to the smoke were firefighters listed on the field roster As of February 2007, 21 of these personnel had undergone open lung biopsy While results are pending for two, 19 individuals have been diagnosed with bronchiolitis obliterans (with constrictive features), a nonspecific finding of inflammation and fibrosis of the bronchioles that is not easily diagnosed and requires a biopsy Most of the 19 Service members diagnosed with bronchiolitis have undergone medical evaluation boards (MEB) for inability to perform their duties

The USACHPPM is extensively involved in the on-going investigation of these cases and is assessing potential health outcomes of concern in other personnel identified as being within 50 kilometers of the fire While individual exposure levels cannot be accurately determined, USACHPPM cannot rule out at this time that the diagnosed cases of constrictive bronchiolitis may be the result of exposures to the sulfur fire smoke plume The medical literature indicates that exposure to high levels of SO_2 and H_2S may result in this medical condition Because acute symptoms in exposed personnel during the time of the fire quickly resolved, there was no anticipation of delayed, chronic health effects occurring years later among exposed personnel If the occurrence of constrictive bronchiolitis is related to sulfur fire smoke exposure, it is possible that others in the area may have developed this condition This possibility is under investigation

Trash Burning Pit at Balad Airbase, Iraq (2004–present)

This large airbase north of Baghdad has undergone repeated deployment OEH assessments by both the US Army and the US Air Force Like other sites in the Middle East, dust and particulate matter have been an ongoing operational problem However, at Balad Airbase the primary source of particulate matter concerns is the smoke resulting from trash burning, the primary method of solid waste disposal, in an open-air pit All non-recyclable materials, including large amounts of plastics, are disposed of in the burn pit Smoke from the burn pit blows over and frequently covers large occupied areas of the camp and has been identified as a potential cause of eye and nose irritation Concerns have been raised by those exposed regarding the potential for long-term health effects associated with breathing the combustion products As a result, enhanced air monitoring of the site has been underway and methods for controlling emissions are being evaluated and implemented (e g , use of incinerators to control and reduce hazardous emissions) As of this report date, two municipal waste incinerators that will significantly reduce airborne particulate matter levels are undergoing final testing and are expected to become operational during the summer 2007

Specific Hazards of Ongoing Concern

Particulate Matter (PM), Iraq and Afghanistan (2003–present)

As described in previous DoD Force Health Protection Quality Assurance annual reports to Congress, PM is still the most significant environmental exposure throughout the USCENTCOM area of responsibility Occasionally it presents a notable impact on operations Shuaiba Port and Balad Air Base are prime examples, though PM concentrations are elevated at many locations throughout the theater Airborne PM levels in these locations are in a range where the US Environmental Protection Agency

indicates that even relatively healthy individuals should limit outdoor activities and strenuous exercises Levels in the "Moderate Risk" category are associated with eye and throat irritation, coughing, and possible increase in upper respiratory problems Concentrations in this range pose significant health concerns to susceptible groups—in the military this can especially include borderline or mild asthmatics not excluded from deployments, other susceptible groups including those with cardiopulmonary disease There is an anticipated risk of lost duty days during the mission deployment associated with these exposure conditions Because the long-term health implications to healthy Service members from the PM in the Middle East are uncertain, the DoD and other federal agencies are continuing to conduct research on this subject

Depleted Uranium Bioassay Results

Depleted uranium (DU) exposure monitoring of personnel who may have been exposed to DU has continued in accordance with the ASD (HA) policy (published May 30, 2003, and April 9, 2004) The weight of evidence associated with a very large body of scientific and medical research accomplished over many years, and especially since the 1991 Gulf War, clearly indicates the absence of any short-term (acute) health effects associated with the inhalation of dust contaminated with DU or due to embedded DU fragments The scientific and medical literature also fails to identify any long-term (chronic) health effects due to DU in exposed personnel, though the research in this area continues Extensive DU and natural uranium literature reviews by the RAND Corporation (1999), the US Department of Health and Human Services' Agency for Toxic Substances and Disease Registry (1999), the National Academy of Science's Institute of Medicine (2000), and the British Royal Society (2001, 2002) support these conclusions. In addition, the Department of Veteran Affairs (VA) long term medical follow-up studies on veterans of Operation Desert Storm and from OIF with DU exposures provide further evidence supporting these conclusions

Nevertheless, because of the public's concerns about DU exposure and because there is still some question regarding long-term health effects associated with embedded fragments containing DU, the DoD maintains its Depleted Uranium Urine Bioassay Program Information and policies pertaining to the DoD's DU biomonitoring policy can be found at *//www pdhealth mil/du asp.*

The DoD categorizes DU exposures into three levels Level I—individuals in or near combat vehicles struck by DU munitions or who entered vehicles immediately afterward to attempt rescue, Level II—individuals who routinely entered DU-damaged vehicles or fought fires involving DU munitions; and Level III—individuals involved in all other DU-related events (incidental exposures) Bioassays are required for anyone with Level I and II DU exposures, and may be ordered for those with Level III exposures as part of appropriate medical management or to address concerns of Service members

As shown in the following chart, as of March 31, 2007, a total of 2,249 Service members have been assessed for exposure to DU through a urine bioassay Ten Service members have had DU confirmed in their urine. It is probable that seven of these 10 Service members had fragment or fragment-type injuries Of the remaining three individuals, one indicated that he was not wounded, one was unsure about potential wounds, and no information about wounds was provided for the third individual None of the individuals have total urine uranium levels or DU levels that have caused or are expected to cause adverse health effects

Operation Iraqi Freedom Depleted Uranium Bioassay Results June 1, 2003 – March 31, 2007						
	Numbers of Personnel Tested for DU Exposure					
Level	**Army**	**Navy/ Marines**	**Air Force**	**Total**	**Confirmed DU Exposure**	**Retained Fragments or Fragment-Type Injury**
I	224	71	2	297	8	25
II	338	98	10	446	0	2
III	228	85	8	321	0	10
Uncategorized	1172	13	0	1185	2	34
Total	1962	267	20	2249	10	81

FORCE HEALTH PROTECTION QA PROGRAM SUMMARY

As described last year and in this year's report, the Department has implemented comprehensive deployment health QA programs focused on pre-and post-deployment health assessments (in individual medical records as well as central databases), immunizations, serum samples, care in-theater and follow-up referral care, and deployment-related hazardous exposures Our FHP&RP office has partnered effectively with the military Services and several DoD centers of excellence to monitor key elements before, during, and after deployment For 2007, we published DoD Instruction 6200 05 on Force Health Protection Quality Assurance These significant activities for 2007 will be addressed in detail in the Department's 2008 report, and each represents our ongoing commitment to protecting the health of military Service members