

COMMITTEE ON VETERANS' AFFAIRS
UNITED STATES SENATE

REPORT OF THE SPECIAL
INVESTIGATION UNIT ON
GULF WAR ILLNESSES

ONE HUNDRED FIFTH CONGRESS

ARLEN SPECTER, *Chairman*



COMMITTEE ON VETERANS' AFFAIRS

ARLEN SPECTER, PENNSYLVANIA, *Chairman*

STROM THURMOND, SOUTH CAROLINA

FRANK H. MURKOWSKI, ALASKA

JAMES M. JEFFORDS, VERMONT

BEN NIGHTHORSE CAMPBELL, COLORADO

LARRY E. CRAIG, IDAHO

Y. TIM HUTCHINSON, ARKANSAS

JOHN D. ROCKEFELLER IV, WEST VIRGINIA

BOB GRAHAM, FLORIDA

DANIEL K. AKAKA, HAWAII

PAUL WELLSTONE, MINNESOTA

PATTY MURRAY, WASHINGTON

CHARLIE BATTAGLIA, *Staff Director*

JIM GOTTLIEB, *Minority Staff Director / Chief Counsel*

DAT P. TRAN, *Editorial Director*

SPECIAL INVESTIGATION UNIT ON GULF WAR ILLNESSES

MICHAEL J. ROTKO
Special Counsel

SHERYL L. WALTER
Deputy Special Counsel

MARY AGOCS
VINCENT S. AVERNA
PATRICK D. BALESTRIERI
DAVID J. BALLAND
MEG KLUCSARITS BEST
MELISSA C. BROWN
WILLIAM T. CAHILL
KATHLEEN A. COLLIER
SUSAN M. CONRATH
KIM W. HAMLETT
QUENTIN P. KINDERMAN

MICHAEL LEINS
MAUREEN LENIHAN
TERENCE M. LYNCH
JEFFREY MCGOWAN
JAMES C. MOORE
JOHN D. NACHMANN
MARION M. SLACHTA
WILLIAM R. STANCO
HEIDI K. SULLIVAN
LEANN YOUNG

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
BACKGROUND	1
KEY FINDINGS	3
I. Preparedness Shortfalls for Effective Defense Against Battlefield Hazards Existed Before and During the Gulf War and Continue Today	4
II. Insufficient Program Monitoring Hinders the Department of Defense's and Department of Veterans Affairs' Effectiveness in Serving Gulf War Veterans	6
III. The Department of Defense's and the Department of Veterans Affairs' Failure to Collect Information, Retain Records, and Generate Valid Data Analysis Impedes Effective Responses to Gulf War Veterans	6
IV. The Department of Defense and Department of Veterans Affairs Must Make Cooperation and Coordination a Top Priority to Ensure Timely and Effective Service for Gulf War Veterans	7
CONCLUSION	8
RECOMMENDATIONS	9
INTRODUCTION	15
REVIEW OF DEFENSE DEPARTMENT AND INTELLIGENCE COMMUNITY ACTIONS, GULF WAR VETERANS' HEALTH, AND IMPLICATIONS FOR THE FUTURE	19
INTRODUCTION	19
THE KHAMISIYAH WEAPONS DEPOT DEMOLITION	21
M8A1 Chemical Detection Alarms	22
Critical Site Information Not Passed to Demolition Team at Khamisiyah	23
Army Inspector General Investigation of Khamisiyah	24
UNSCOM Concludes Chemical Weapons Were at Khamisiyah	25
UNSCOM Rates Iraq CW Sarin Purity as High as 75 Percent	26
Misidentification of Khamisiyah Site Key to Intelligence Confusion	28
External Pressures Prompted U.S. Government Investigation Into Khamisiyah	28
Intelligence Operations Scrutinized	29
Intelligence Operations Were Not Fully Integrated and Coordinated	30
CIA, Joint Intelligence Liaison Element Not Plugged-In to All Intelligence Operations	30
Joint Agency Efforts Begin to Resurrect Gulf War Intelligence	30
MITRE Report	32
DOD/OSAGWI-CIA ATTEMPTS TO RECONSTRUCT KHAMISIYAH	33
Background	33
"Super Plume" of All Five Models Developed to Show "Worst Case Scenario"	34
Questionable Methodology Was Used in Developing the "Super Plume" Model	36
AFTAC, A Key Modeling Resource, Not Included In Modeling Process	38
AFTAC Recreated Khamisiyah Meteorology	39
AFTAC Model Differs From OSAGWI/CIA Results	39
Lessons Learned From the Khamisiyah Modeling Effort	40

ARE THERE OTHER KHAMISIYAHS?	44
Czech/French Chemical Weapons Detections Reports	45
Czech Detections Not Verified by Allies	45
Czech Equipment Very Sensitive	46
Czechs Point to Bombing Residue as Chemical Source	46
Did the French Detect Mustard Agent?	47
Senate Investigators Meet with Allies	47
WEAKNESSES IN CHEMICAL AND BIOLOGICAL READINESS	48
GAO Critical of Chemical/Biological Training Programs	49
The U.S. Military Was Not Well-Prepared for CW Attacks in the Gulf War	49
The Industrial Base Was Slow to Respond to Production Needs in Support of CW Preparedness	50
Training and Technology Limitations	51
M8A1 Alarm Systems Sounded Frequent False Alarms	51
Fox Vehicle Readings May Have Resulted in More Questions than Answers	51
Biological Agent Detection Capabilities Are “Rudimentary”	52
Chemical and Biological Weapons Visibility and Funding	52
STEPS TAKEN BY DOD TO INCREASE CHEMICAL AND BIOLOGICAL WEAPONS DEFENSE READINESS	53
Joint Doctrine Development and Funding Levels for CBW Defense	53
DOD to Develop Service-Wide Protocols	53
Army Chemical Force to Be Strengthened	53
New Chemical and Biological Agent Alarms Are Being Developed	54
DOD’s Anthrax Vaccination Plan	54
Logistical and Technical Challenges	55
DOD Must Set Priorities For Improving CBW Preparedness	55
INFORMATION COLLECTION AND RECORDKEEPING SHORTFALLS DURING THE GULF WAR	56
Records Mismanagement Complicates Analysis of Gulf War Events	56
Troop Movement and Medical Records	56
Health Surveillance Shortfalls	57
Vaccination Records	57
Records of Pesticide Use Were Not Kept	58
CENTCOM’s Records Management System Is Ineffective	58
Records Management Enforcement Lacking	58
DEPLETED URANIUM	58
OSAGWI CASE NARRATIVES	59
CONCLUSION	62
RECOMMENDATIONS	62
 ASSESSMENT OF GULF WAR VETERANS’ HEALTH CARE SERVICES AND COMPENSATION	
BENEFITS AT THE DEPARTMENT OF VETERANS AFFAIRS	65
INTRODUCTION	65
OVERVIEW OF VA’S RESPONSIBILITIES TOWARD GULF WAR VETERANS	66
Lack of Cooperation Between VA’s Health and Benefits Administrations Hinders Implementation of the “One-VA” Approach	68
VA Disability Compensation and the Gulf War Veteran	68
Service-connection for Disabilities and “Undiagnosed Illnesses”	69
Processing of Gulf War Veterans’ Compensation Claims	70
VA Health Care Services Available to Gulf War Veterans	71
Special Health Care Eligibility For Gulf War Veterans	71

VBA'S DECISIONS REGARDING COMPENSATION CLAIMS PROCESSING OF GULF WAR CLAIMS HAVE BEEN INCONSISTENT AND COUNTERPRODUCTIVE	72
INFORMATION MANAGEMENT PROBLEMS HINDER TIMELY AND EFFICIENT DELIVERY OF VA BENEFITS AND HEALTH CARE SERVICES TO GULF WAR VETERANS	75
INEFFECTIVE MONITORING OF HEALTH CARE AND BENEFITS ADMINISTRATION RESULTS IN INCONSISTENT DELIVERY OF VA BENEFITS TO GULF WAR VETERANS ..	78
VA Does Not Comply with its Own Regulations and Policy Directives	80
Inadequate Internal Information Sharing at VA Creates Barriers That Hinder Efforts to Deliver Benefits and Services	83
INADEQUATE IMPLEMENTATION OF SERVICES AND BENEFITS FOR GULF WAR VETERANS	87
VA Has Underestimated What Is Needed by its Veterans Registry Physicians to Deliver Priority Health Care Services to Gulf War Veterans	89
Training to Veteran Registry Physicians Is Uneven	90
VA's National Level Program Managers Do Not Exert Sufficient Oversight of Implementation of Gulf War Veteran Programs and Services	90
GULF WAR VETERANS ARE DISSATISFIED WITH VHA'S SERVICE DELIVERY	91
VA DOES NOT MAINTAIN ADEQUATE INFORMATION SYSTEMS TO ACCURATELY TRACK IMPORTANT DATA REGARDING GULF WAR VETERANS	92
VBA DOES NOT ADEQUATELY UTILIZE ITS QUALITY ASSESSMENT TOOLS TO OVERCOME KNOWN DEFICIENCIES	94
VHA EFFORTS AT QUALITY ASSURANCE ARE NOT ALWAYS SUCCESSFUL	95
CONCLUSION	96
RECOMMENDATIONS	97

EVALUATION OF WARTIME EXPOSURES, GULF WAR VETERAN HEALTH CONCERNS AND RELATED RESEARCH, AND UNANSWERED QUESTIONS	101
INTRODUCTION	101
HEALTH ISSUES PRIOR TO THE GULF WAR DEPLOYMENT	101
Background on the Military Health Care System's Role in Maintaining Troop Health	101
Pre-Deployment Medical Efforts to Protect Against Biological and Chemical Weapons Threats	102
Background on the FDA and Investigational New Drugs (INDs)	102
DOD Efforts to Administer Two INDs, Botulinum Toxoid Vaccine and PB, During the Gulf War	103
DOD Applied to FDA to Use Investigational New Drugs Without Informed Consent During the Gulf War	104
FDA Issues an Interim Final Rule That Allows DOD to Use PB and Botulinum Toxoid Vaccine Under Certain Conditions Without Informed Consent	104
HEALTH ISSUES DURING DEPLOYMENT	105
Background on Deployed Troops	105
Medical Force Build-up and Deployment for Operations Desert Shield/Storm	107
Other In-Theater Military Medical Preparations	107
Medical Force Capabilities and Shortcomings	107
Shortcomings in Army Medical Capabilities	108
Shortcomings in Navy Medical Capabilities	108
Shortcomings in Air Force Medical Capabilities	109
The Link between Potential Exposures to Harmful Agents and Adverse Health Effects	109
Background	109
Measuring Exposure	110

Summary of Potential Troop Exposures to Harmful Agents During the Gulf War . .	110
Biological Warfare Agents	111
Chemical Warfare (CW) Agents	112
Depleted Uranium	113
Heat	114
Infectious Diseases	115
Oil Well Fires	116
Pesticides	117
Pyridostigmine Bromide	118
Sand	119
Solvents: Petroleum Products, Diesel Heaters, and Others	119
Stress	120
Vaccines	121
Effect of Multiple Exposures on Gulf War Veterans' Health	124
Poor Data Collection on Gulf War Exposures Hinders Current Treatment and Research	
Efforts	124
Poor Tracking of Gulf War Health Status Hinders Current Treatment and Research Efforts .	125
Improved Medical Surveillance during the Gulf War Could Have Collected	
Important Health Information	125
HEALTH ISSUES FOLLOWING DEPLOYMENT	126
VA and DOD Establish Registries to Evaluate Gulf War Veterans' Health Complaints	126
VA's Persian Gulf Registry and Uniform Case Assessment Protocol and DOD's	
Comprehensive Clinical Evaluation Program for Persian Gulf War Veterans . . .	127
Differences Between VA and DOD Gulf War Registries	127
External Reviews of the Registries	128
Demographic and Health Status Profiles of Registry Participants	129
Gulf War Veterans And The Dilemma of Unexplained Illnesses	137
Understanding the Link Between War Experiences and Health	138
Attempts to Devise Case Definitions for Unexplained Illnesses	139
Diagnosable Conditions and Death Rates in Gulf War Veterans	139
Concerns About the Health of Gulf War Veterans' Family Members	140
Persian Gulf Spouse and Children Examination Program	140
Overview of Independent Scientific Panel Reports on Gulf War Health Consequences	141
Institute of Medicine: Health Consequences of Service During the Gulf War	142
National Institutes of Health (NIH) Technology Assessment Workshop	143
Defense Science Board Task Force on Persian Gulf War Health Effects	143
The Presidential Advisory Committee on Gulf War Veterans' Illnesses	144
Long-Term Health Consequences of Gulf War Exposures	145
Current State of Treatment of Gulf War Veterans by DOD and VA	146
Department of Defense: Walter Reed Army Medical Center's Gulf War Health	
Center	146
VHA Treatment of Gulf War Veterans	147
SIU Survey of VA Hospitals on the Status of Gulf War Health Programs	147
Current State of Federal Research Programs on Gulf War Health Issues	148
Persian Gulf Veterans Coordinating Board Research Working Group	148
Federal Research Funding Levels and Priorities	148
Gulf War Illnesses Federal Research Funded Outside the Peer Review Process	151
Additional Research	151
Allied Coalition Health Experiences	152
CONCLUSION	153
RECOMMENDATIONS	154

POSSIBLE LONG TERM HEALTH CONSEQUENCES OF GULF WAR EXPOSURES: AN INDEPENDENT EVALUATION	157
INTRODUCTION	157
HEALTH EFFECTS OF EXPOSURES TO NEUROTOXIC AGENTS USED IN THE PERSIAN GULF WAR, PREPARED BY FREDRIC GERR, M.D.	159
PERSISTENT HEALTH EFFECTS OF PESTICIDES AND OTHER CHEMICALS USED IN DESERT STORM AND DESERT SHIELD, PREPARED BY MATTHEW KEIFER, M.D., M.P.H.	171
POSSIBLE POTENTIATION OF PYRIDOSTIGMINE BROMIDE BY PESTICIDES, PREPARED BY JAMES MOSS, Ph.D.	181
A DISCUSSION OF ISSUES CONCERNING THE ROLE OF STRESS IN VETERANS' REPORTING OF SYMPTOMS FOLLOWING DEPLOYMENT TO THE GULF WAR, PREPARED BY RICHARD LETZ, Ph.D.	194
AIR POLLUTANT EXPOSURE AND POTENTIAL HEALTH EFFECTS AMONG PERSIAN GULF WAR VETERANS, PREPARED BY MICHAEL LEBOWITZ, Ph.D.	208
MYCOPLASMA AND ILLNESS, PREPARED BY KEVIN DYBVIK, Ph.D.	216
EPIDEMIOLOGICAL STUDIES OF THE REPRODUCTIVE HEALTH OF PERSIAN GULF WAR VETERANS, PREPARED BY SHANNA SWAN, Ph.D.	226
GULF WAR REPRODUCTIVE HAZARDS, PREPARED BY MELISSA McDIARMID, M.D., M.P.H.	233
CARCINOGENS IN THE PERSIAN GULF CONFLICT, PREPARED BY MELISSA McDIARMID, M.D., M.P.H.	257
 GLOSSARY	 273
 NOTES	 279