### ARMY, MARINE CORPS, NAVY, AIR FORCE



MULTISERVICE
TACTICS,
TECHNIQUES,
AND PROCEDURES
FOR
BIOLOGICAL
SURVEILLANCE

FM 3-11.86 MCWP 3.37.1C NTTP 3-11.31 AFTTP (I) 3-2.52

**OCTOBER 2004** 

**DISTRIBUTION RESTRICTION:** Approved for public release; distribution is unlimited.

MULTISERVICE TACTICS, TECHNIQUES, AND PROCEDURES

### **FOREWORD**

This publication has been prepared under our direction for use by our respective commands and other commands as appropriate.

STANLEY M. LILLIE Brigadier General, CM

Commandant

United States Army Chemical School

EDWARD HANLON, JR.

Lieutenant General, USMC Commanding General

Marine Corps Combat

Development Command

JOHN M. KELLY

Rear Admiral, USN

Commander

Navy Warfare Development Command

DAVID F. MacGHEE, JR.

Major General, USAF

Commander

Headquarters Air Force Doctrine Center

### **PREFACE**

### 1. Scope

This multiservice operations publication provides tactics, techniques, and procedures (TTP) for planning and conducting biological-surveillance operations to monitor, detect, sample, identify, report, and evacuate samples of biological-warfare (BW) agents used against United States (US) forces. The term "biological surveillance", as used in this publication, refers to the actions taken to detect that a BW attack has occurred and identify the suspected BW agent involved. Users of this manual are nuclear, biological, and chemical (NBC) or chemical, biological, and radiological (CBR) staff and medical officers, unit commanders, NBC noncommissioned officers (NCOs), and others involved in planning and conducting biological-surveillance operations.

NOTE: The United States Marine Corps (USMC) uses the acronym METT-T (mission, enemy, terrain and weather, troops available, and time). Civilian considerations are inherently measured within the context of this acronym.

### 2. Purpose

- a. The purpose of this publication is to provide commanders, staffs, and unit leaders with a reference for the planning and conduct of biological-surveillance operations. It serves as a key source document for the development of other multiservice manuals and the refinement of existing training support packages, training center exercises, and service school curriculum.
  - b. This manual provides the commander and his staff with tools to support:
    - Countering a biological threat.
    - Providing input to support force protection (FP).
    - Supporting medical requirements.
    - Supporting the decision making process.

### 3. Application

This publication is designed for use at the operational and tactical level. The publication will support command staff planning in preparing for and conducting biological-surveillance operations. This publication also provides guidance to biological-detection unit leaders and personnel for conducting biological surveillance.

### 4. Implementation Plan

Participating service command offices of primary responsibility (OPRs) will review this publication, validate the information, and reference and incorporate it in service and command manuals, regulations, and curricula as follows: **Army.** The United States Army (USA) will incorporate this publication in training and doctrinal publications as directed by the commander, USA Training and Doctrine Command (TRADOC). Distribution is according to Department of the Army (DA) Form 12-99-R (Initial Distribution [ID] Requirements for Publications).

**Marine Corps.** The USMC will incorporate the procedures in this publication in training and doctrinal publications as directed by the commanding general (CG), US Marine Corps Combat Development Command (MCCDC). Distribution is according to the USMC publication distribution system.

**Navy.** The United States Navy (USN) will incorporate the procedures in this publication in training and doctrinal publications as directed by the commander, Navy Warfare Development Command (NWDC). Distribution is according to the military standard requisitioning and issue procedures (MILSTRIP).

**Air Force.** The United States Air Force (USAF) will validate and incorporate appropriate procedures in accordance with the applicable governing directives. It will develop and implement this and other NBC multiservice tactics, techniques, and procedures (MTTPs) through a series of USAF manuals providing service-specific TTPs. Distribution is according to the USAF publication distribution system.

### 5. User Information

- a. The USA Chemical School (USACMLS) developed this publication with the joint participation of the approving service commands.
- b. We encourage recommended changes for improving this publication. Key your comments to the specific page and paragraph and provide a rationale for each recommendation. Send comments and recommendations directly to—

### Army

Commandant
US Army Chemical School
ATTN: ATSN-CM-DD
401 MANSCEN Loop, Suite 1029
Fort Leonard Wood, MO 65473-8926
COMM (573) 596-0131, extension 3-7364

### **Marine Corps**

Commanding General US Marine Corps Combat Development Command ATTN: C42 (Director) 3300 Russell Road Quantico, VA 22134-5001 DSN 278-6234; COMM (703) 784-6234

### Navy

Commander
Navy Warfare Development Command
ATTN: N5
686 Cushing Road
Newport, RI 02841-1207
DSN 948-4201; COMM (401) 841-4201

### **Air Force**

HQ Air Force Doctrine Center ATTN: DJ 155 North Twining Street Maxwell AFB, AL 36112-6112 DSN 493-7442; COMM (334) 953-7442 Webpage: <a href="https://www.doctrine.af.mil">www.doctrine.af.mil</a>

Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

\*FM 3-11.86 MCWP 3-37.1C NTTP 3-11.31 AFTTP(I) 3-2.52

FM 3-11.86

US Army Training and Doctrine Command Fort Monroe, Virginia

MCWP 3-37.1C

Marine Corps Combat Development Command Quantico, Virginia

NTTP 3-11.31

Navy Warfare Development Command Newport, Rhode Island

AFTTP(I) 3-2.52

Headquarters Air Force Doctrine Center Maxwell Air Force Base, Alabama

### 4 October 2004

# MULTISERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR BIOLOGICAL SURVEILLANCE

### **TABLE OF CONTENTS**

		Page
EXECUTIVE S	SUMMARY	xi
Chapter I	BIOLOGICAL SURVEILLANCE PRINCIPLES, CONCEPTS, AN	ND I-1
	Background	I-1
	Surveillance Principles	
	Biological - and Medical - Surveillance Concepts	
	Execution of Operational Concepts of Biological and Medical Surveillance	
	Biological - Warfare Threat Triggers	
	Application of Principles of Biological Surveillance	
	Commander's Information Requirements—Sample Results and Medical Surveillance	

DISTRIBUTION RESTRICTION: Approved for public release; distribution is unlimited.

<sup>\*</sup>This publication supersedes FM 3-101-4, 9 June 1997 and FM 3-101-6, 25 March 1999.

		Page
CHAPTER II	BIOLOGICAL-SURVEILLANCE FUNCTIONS, RESPONSIBILIT	
	AND CAPABILITIES	
	Background	
	Responsibilities	
	Capabilities	
	Applying Biological-Detection Capabilities	II-14
CHAPTER III	BIOLOGICAL-SURVEILLANCE PLANNING	III-1
	Background	III-1
	Integrated Biological-Surveillance Operations	
	Tactical, Operational, and Strategic Planning	
	Planning Process	III-2
	Integration	III-14
CHAPTER IV	BIOLOGICAL-SAMPLE EVACUATION	IV-1
	Background	
	Sample Evacuation Requirements	
	Supported Unit Sample Evacuation Plan	
	Biological Detection Asset Sample Evacuation Plan	
	Biological-Detection Asset Sample Evacuation Planning	
	and Operational Considerations	IV-3
	Sample Evacuation Execution	
	Chain-of-Custody	IV-4
CHAPTER V	INFORMATION MANAGEMENT	V-1
01.7.11 1.2.11 1	Background	
	Information Management	
	Priority Information Requirements	
	Reporting	
	Information Collection and Operational Level Assessments	
	Unit Incident Reporting	
	Communications Architecture	
APPENDIX A	MEDICAL COUNTERMEASURES AND PROTECTION	۸_1
AI I LIIDIA A	Background	
	Medical Countermeasures	
	Vaccines	
	Medical Intervention.	
	Restriction of Movement	
ADDENISIV S	FIELD LAB CURRORT	D 4
APPENDIX B	FIELD LAB SUPPORT	
	Background	
	Types of Labs	
	Confidence Levels of Lab Analysis Results	
	Employment of LabsLaboratory Response Network for Biological Terrorism	
	Laboratory nesponse network for biological Terrorism	B-4

		Page
APPENDIX C	<b>BIOLOGICAL-COLLECTION AND -DETECTION CAPABILITIES</b>	
	AND LIMITATIONS	
	Background	
	Joint Portal Shield	
	Biological Integrated Detection System	C-2
	Joint Biological Point Detection System, Fixed-Site or	
	Trailer-Mounted Version	
	Long-Range Biological Standoff Detection System	
	Maritime Biological Agent Detection Capabilities	
	Dry Filter Unit	
	Department of Defense Biological Sampling Kit  Common Limitation	
	Common Limitation	6-7
APPENDIX D	BIOLOGICAL-DETECTION CONTRACTED LOGISTICS	
	SUPPORT	
	Background	
	Principles	
	Contracted Logistics Support Planning Considerations	
	Employment	
	Responsibilities	
	Contracted Logistics Support Capabilities and Constraints	
	Contracted Logistics Support Team Assessment	
	Contracted Logistics Support Control	
	Contracted Logistics Support Concept	D-9
APPENDIX E	BIOLOGICAL-COLLECTION AND -DETECTION SYSTEM	
	EMPLOYMENT	E-1
	Background	
	Mission	
	Concept of Operations	
	Employment Considerations	E-5
	Biological-Warfare Threat Analysis (Intelligence Preparation	
	of the Battlespace)	
	Duration and Modes of Operation for Biological Detection	
	Biological-Detection and/or -Collector Employment Tactics	
	Preparing a Biological-Surveillance Plan	E-13
	Maritime Biological -Detection and -Collection	= 40
	Employment Tactics	E-18
	Common Detection Site Selection Criteria for	E 40
	Biological-Detection Systems	
	Indoor Site Selection for Biological Detectors or Collectors	E-22
APPENDIX F	BIOLOGICAL-WARFARE ATTACK WARNING	
	Background	F-1
	Warning Without a Biological-Detection and -Identification	
	Capability	F-1
	Warning With a Biological-Detection and -Identification	
	Capability	F-2
	Centralized Versus Decentralized Warning	F-2

		Page
APPENDIX G	BIOLOGICAL-WARFARE SAMPLE EVACUATION PLANNING,	
	HANDLING, AND CHAIN-OF-CUSTODY	G-1
	Background	G-1
	Sample Evacuation Planning and Execution	
	Sample Evacuation Logistics Requirements	
	Chain-of-Custody Document Preparation	
	Biological Sample Packaging	
	Sample Identification Number Assignment	
	Supporting Documentation Packaging	
	Completed Evacuation Package	
	Sample Evacuation Planning Considerations	
	Background Sample Evacuation	G-11
APPENDIX H	LONG-RANGE BIOLOGICAL STANDOFF DETECTION SYSTEM	
	OPERATIONS	
	Background	
	Mission	
	Capabilities	
	Organization	
	Employment Planning	H-4
	Long-Range Biological Standoff Detection System	
	Employment	H-6
	Long-Range Biological Standoff Detection System	
	Mission Profiles	
	Mission Planning	H-9
	Long-Range Biological Standoff Detection System	
	Mission Phases	H-16
APPENDIX I	BIOLOGICAL INTEGRATED DETECTION SYSTEM UNIT	
	OPERATIONS (M3IA1 AND M31A2)	I-1
	Background	
	Preplanned Product Improved Biological Integrated	
	Detection System	I-1
	Joint Biological Point Detection System (M31A2-Biological	
	Integrated Detection System) Operations	I-13
	Biological Integrated Detection System Unit Information	
	Management and Reports	I-18
	Biological Integrated Detection System Unit Communication	I-24
REFERENCES	Refere	nces-1
CLOSSABY	Glos	200F1 4
GLUSSAR I	Glos	ssar y-T
INDEX	li de la companya de	ndev-1

### **FIGURES**

Figure I-1. METT-TC Factors That Impact Biological	
Surveillance	I-4
Figure I-2. Preparing BW Risk Reduction Measures	I-5
Figure II-1. JBPDS and Dry Filter Unit Coverage of	
an APOD	II-10
Figure II-2. BIDS Platoon Emplacement to Provide	
Coverage for JTF (Corps Size) Maneuver Forces	
for a Long Line Source Attack	II-11
Figure II-3. Employment of Multiple Biological-Detecti	
Collection Systems (System of Systems)	
Figure III-1. Biological-Surveillance Operations	
Figure IV-1. Field Confirmatory Lab Support From	
USN Capability	IV-5
Figure IV-2. Sample Collection Flow	
Figure V-1. Maintaining Mission Readiness:	
"Detect to Treat"	V-3
Figure V-2. Possible Biological-Detection Network	
with Centralized Warning	V-4
Figure V-3. Tracking BW Data	V-4
Figure V-4. Biological-Event-Tracking Tool	
Figure V-4. Diological-Event-Tracking Tool	
Figure V-6. Biological-Event-Tracking Tool (Sample)	
Figure B-1. Field Confirmatory Testing	
Figure B-1. Laboratory Response Network Structure	
Figure E-1. Biological-Surveillance Mission	D-0
Planning—Preattack	T 9
Figure E-2. Biological-Surveillance Mission	Li-2
Planning—Attack and Postattack	Tr A
Figure E-3. Conducting BW-Threat Analysis (IPB)	
Figure E-4. Dice Five Array	
Figure E-5. Circle Employment	
Figure E-6. Picket Line Employment	
Figure E-7. Semicircle Employment	
Figure E-8. Dense Picket Employment	
Figure E-9. Critical-Node Array	
Figure E-10. Area Array Support	
Figure E-11. BIDS Deployment Areas	
Figure G-1. Sample Chain-of-Custody Form	
Figure H-1. LRBSDS Employment Concept	
Figure H-2. Sample LRBSDS Mission	H-8
Figure H-3. Flight Profile Examples for LRBSDS	
	H-11
Figure H-4. Sample Air Mission Briefing Guide	
Figure H-5. Optimal Altitude for Air Release	
Figure H-6. Optimal Altitude for Ground Release	H-23
Figure H-7. Difference in Helicopter Altitude and	
NAI Elevation	H-23

		Page
	Figure H-8. Low-Altitude Flight Profile	
	Considerations	H-24
	Figure H-9. Two LRBSDSs Scanning an Entire NAI	
	Figure H-10. An LRBSDS Scanning a Checkerboard	
	Pattern Into an NAI	H-25
	Figure H-11. An LRBSDS Scanning the Front and	
	Rear Edges of an NAI	Н-25
	Figure H-12. Optimal Data Collection Altitude	
	Figure H-13. Minimum Single-Pass Altitude	
	Figure H-14. Minimum Multipass Altitude	
	Figure H-15. Departure Report	
	Figure H-16. Course Leg Commencement Request	
	Figure H-17. Course Leg Commencement SITREP	
	Figure H-18. Initial LAZER Detection Report	
	Figure H-19. Follow-Up Detection Report	
	Figure H-20. Cloud Loss Detection Report	
	Figure I-1. Sample BIDS SITREP	
	Figure I-2. Sample Event-Tracking Form	
	Figure I-2. Sample Event-Tracking Form	, 1-4 <i>4</i>
	Event Tracking	Т 99
	Figure I-4. Sample Biological-Detection Platoon	, 1-40
	Sector Sketch	T 94
	Figure I-5. HF Network	
	<del>-</del>	
	Figure I-6. MSE Network	1-29
	Figure I-7. VHF Network for M31, M31A1, and M31A2	Τ 00
	and FBCB2 for M31A2 Only	1-29
	Figure I-8. Sample FBCB2 Free Message Text for	Τ 9.0
	Biological-Incident Reports	1-3U
TABLES		
IABLES		
	Table I-1. Biological-Surveillance Principles	T_11
	Table II-1. Command Staff Biological-Defense	, 1 <sup>-</sup> 11
	Responsibilities	II-2
	Table II-2. Biological-Detection and -Collection	
	Assets—Operational Envelope	TT Q
	Table II-3. Biological-Sample Courier Tasks	
	Table III-1. Identifying Risk Reduction Measures Table III-2. Biological-Surveillance Planning—Situation	
	Table III-3. Biological-Surveillance Planning—Mission.	
	Table III-4. Biological-Surveillance Planning—Executio	n 111-6
	Table III-5. Biological-Surveillance Planning—Service	TTT 11
	Support	
	Table III-6. Biological-Surveillance Planning—Comman	
	and Signal	
	Table V-1. Warning Level Applicability	
	Table V-2. System Confidence Levels	
	Table C-1. BIDS Comparison	C-3

	Page
Table C-2. Dry Filter Unit 2000 Functions	С-5
Table C-3. Dry Filter Unit 2000 Biological-Detection	
Process	С-6
Table E-1. Favorable, Marginal, or Unfavorable	
Meteorological Conditions for BW Line	
	E-9
Table E-2. Sample Duration Intervals for Biological	
Detection System or Collector Operations	E-9
Table F-1. Pros and Cons of the Centralized Warning	
System	F-3
Table F-2. Pros and Cons of Decentralized Warning	
System	F-3
Table G-1. Sample Identification Numbers	
Table G-2. Preparing a Dry Filter Unit Filter for	
Shipment	G-9
Table G-3. Packaging Supporting Documents for	
Evacuation	G-10
Table H-1. LRBSDS Employment Options	H-7
Table H-2. Example of an LRBSDS Staff Planning	
	H-9
Table H-3. Helicopter NOE Altitude (150 to 1,000 Feet	
	H-13
Table H-4. Helicopter NOE Altitude (1,001 to 5,000 Feet	
AGL)	
Table H-5. LRBSDS Mission Planning Checklist	H-15
Table H-6. LRBSDS Mission Preparation Checklist	
Table H-7. LRBSDS Biological-Detection Process	H-20
Table H-8. LRBSDS Biological-Surveillance Mission	
Execution Checklist (Sample)	
Table H-9. Data Items for LRBSDS Detection Report	
Table H-10. LRBSDS Postoperations Checklist	
Table I-1. P3I BIDS (M31A1) System Functions	
Table I-2. Preparing the Wet Collector for Evacuation	I-4
Table I-3. Preparing an Alternate Sample Container	
for Shipment	I-5
Table I-4. Packing Supporting Documents for	
Evacuation	I-6
Table I-5. Comparison of the UVAPS, CBMS, and	
Mini-FCM	
Table I-6. UVAPS, CBMS, and Mini-FCM Capabilities	I-8
Table I-7. Possible Impact of the Environment on	
BIDS Component Results	
Table I-8. P3I BIDS Background Data	
Table I-9. P3I BIDS Event Data	
Table I-10. P3I BIDS System-Level Process	
Table I-11. P3I BIDS System-Level Response Profile	1-12
Table I-12. Factors That Could Influence Medium or	<b>T</b>
Low Confidence Levels	I-13

	Page
Table I-13. JBPDS (M31A2-BIDS) System Functions	I-13
Table I-14. Packaging Supporting Documents for	
Evacuation (JBPDS [M31A2-BIDS])	I-15
Table I-15. Background Characteristics	I-17
Table I-16. JBPDS (M31A2-BIDS) Background Data	I-18
Table I-17. JBPDS (M31A2-BIDS) Event Data	I-18

### **EXECUTIVE SUMMARY**

# Multiservice Tactics, Techniques, and Procedures for Biological Surveillance

### Biological-Surveillance Principles, Concepts, and Threats

Chapter I provides the principles and concepts of biological and medical surveillance. It discusses the execution of biological and medical surveillance and provides information on assessing the BW threat.

### Biological-Surveillance Functions, Responsibilities, and Capabilities

Chapter II provides an overview of the functions of biological surveillance. It continues to define responsibilities of the staff in conducting biological-surveillance operations. It also provides the capabilities required to execute biological-surveillance operations.

### **Biological-Surveillance Planning**

Chapter III discusses the planning of biological-surveillance operations. It discusses integrated biological-surveillance operations. It provides guidance for planning biological surveillance at the tactical, operational, and strategic levels. The chapter culminates with a discussion on the biological-surveillance process and the integration of biological-surveillance assets. The chapter provides a discussion on the biological-surveillance annex to an operation order (OPORD).

### **Biological-Sample Evacuation**

Chapter IV provides guidelines for conducting biological-sampling operations. It discusses sample evacuation requirements, coordination, planning, and execution. It provides guidance on maintaining the sample chain of custody and conducting sample transfers. It also discusses the sample evacuation plan and subsequent sample analysis.

### **Information Management**

Chapter V provides an overview of biological-detection information management. It discusses the elements of BW attack determination and decision making to include priority information requirements, reports, communications, operational-level assessments, and decisions.

### **PROGRAM PARTICIPANTS**

The following commands and agencies participated in the development of this publication:

### **Army**

United States Army Chemical School, 401 MANSCEN Loop, Suite 1029, Fort Leonard Wood, MO 65473.

United States Army Medical Department Center and School, 1400 E. Grayson Street, Fort Sam Houston, TX 78234.

United States Army Soldier Biological Chemical Command, Aberdeen Proving Ground, MD 21040.

### **Marine Corps**

United States Marine Corps Combat Development Command, 3300 Russell Road, Suite 318A, Quantico, VA 22134-5021.

### Navy

United States Navy Warfare Development Command, 686 Cushing Road, Sims Hall, Newport, RI 02841.

### Air Force

United States Air Force Civil Engineer Support Activity, 14A Barnes Drive, Suite 1, Tyndall AFB, FL 32403.

United States Air Force Doctrine Center, 155 North Twining Street, Maxwell AFB, AL 36112-6112.

### Chapter I

## BIOLOGICAL-SURVEILLANCE PRINCIPLES, CONCEPTS, AND THREATS

### 1. Background

Biological- and medical-surveillance operations are mutually supportive and critical in support of FP. Biological detection and medical surveillance could be the first line of defense against a biological attack. These operations can support identifying whether or not a BW attack occurred prior to the onset of symptoms among the force.

a. Biological Surveillance. Surveillance is the systematic observation of aerospace, surface, or subsurface areas, places, persons, or things by visual, aural, electronic, or other means. Specifically, biological surveillance is the observation of specific areas of an area of operations (AO) for biological hazards. This includes the use of biological-detection or -collection assets (such as conducting background monitoring and biological-detection operations) and all source intelligences capable of providing information that a biological attack has occurred. It "paints the picture" of the status of the biological threat for the commander. It also includes the analysis and dissemination of the data collected.

#### b. Medical Surveillance.

- (1) Medical surveillance is the ongoing, systematic collection of health data essential to the evaluation, planning, and implementation of public health practice. It is closely integrated with timely dissemination of data as required by a higher authority. A medical-surveillance system includes a functional capacity for the collection, analysis, and dissemination of data linked to public health programs. The foundation of a medical-surveillance program is the determination of unit-specific rates of illness and injuries of public health significance (see *Appendix A*). Medical surveillance is closely integrated with the timely dissemination of this data to those responsible for the prevention and control of disease and nonbattle injuries (DNBIs) and biological-defense planning. The establishment of uniform, standardized health surveillance and readiness procedures for all deployments is listed in Chairman of the Joint Chiefs of Staff (CJCS) Memorandum Military Classification Manual (MCM)-0006-02, Department of Defense Directive (DODD) 6490.2, and Department of Defense Instruction (DODI) 6490.3.
- (2) Medical surveillance may provide the first indicator that a biological attack has occurred. If an attack is not detected directly, the first indication may be an increase of illness among the affected population. Most BW agents induce symptoms after an incubation period. An influx of patients reporting similar symptoms may indicate that an attack has occurred. Although it may be too late for medical countermeasures to help individuals who already show symptoms (see *Appendix A*), the trend can alert the medical system to initiate protective measures such as vaccines or antibiotics for those who have been exposed but are not yet sick.