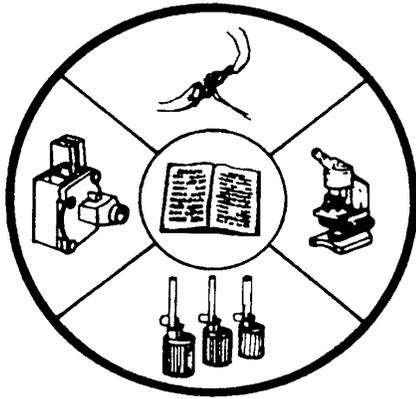


STP 8-91S15-SM-TG

# SOLDIER'S MANUAL AND TRAINER'S GUIDE



**MOS 91S  
PREVENTIVE  
MEDICINE  
SPECIALIST**  
SKILL LEVELS 1/2/3/4/5



**HEADQUARTERS, DEPARTMENT OF THE ARMY**

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**SOLDIER TRAINING PUBLICATION**  
No. 8-91S15-SM-TG

**HEADQUARTERS**  
**DEPARTMENT OF THE ARMY**  
Washington, DC, 28 October 1997

**SOLDIER'S MANUAL**  
**SKILL LEVELS 1/2/3/4/5**  
**AND TRAINER'S GUIDE**

**MOS 91S**  
**PREVENTIVE MEDICINE SPECIALIST**

**TABLE OF CONTENTS**

	<i>Page</i>
<b>PREFACE</b>	vi
<b>CHAPTER 1. INTRODUCTION</b>	1-1
<b>CHAPTER 2. TRAINER'S GUIDE (TG)</b>	
General	2-1
Battle Focused Training	2-1
Relationship of Soldier Training Publications (STPs) to Battle-Focused Training	2-1
Trainer's Responsibilities	2-2
Evaluation Guide	2-4
Training Tips for the Trainer	2-5
Military Occupational Specialty Training Plan	2-6
MOS Training Plan, Part I: Subject Areas and Duty Positions	2-8
MOS Training Plan, Part II: Critical Tasks	2-9
Individual Task/ARTEP Crosswalk	2-11
<b>CHAPTER 3. MOS SKILL LEVEL TASKS</b>	
Section I. Skill Level 1 Tasks	
Subject Area 1: Food	
081-850-0111 Inspect a Food Service Facility	3-1
081-850-0112 Inspect a Field Food Service Facility	3-8
081-850-0113 Collect an Ice Sample for Bacteriological Analysis	3-12

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\* This publication supersedes STP 8-91S15-SM-TG, 11 June 1993.

## STP 8-91S15-SM-TG

### Subject Area 2: Water

081-850-0123	Collect a Treated Water Sample for Bacteriological Analysis	3-13
081-850-0124	Perform Bacteriological Analysis on Water Samples	3-15
081-850-0125	Perform Chemical Analysis on Water Samples Utilizing the Water Quality Analysis Set	3-19
081-850-0126	Perform a Chemical Agent Test on Water with an M272 Kit	3-20
081-850-0127	Inspect a Field Unit's Water Supply	3-25
081-850-0128	Perform an Inspection for Cross Connections	3-29

### Subject Area 3: Recreational Water

081-850-0131	Collect Bacteriological Samples from Swimming Pools	3-32
081-850-0132	Inspect a Swimming Pool	3-34
081-850-0133	Collect a Bacteriological Sample from a Natural Bathing Area/Waterway	3-40
081-850-0134	Inspect a Natural Bathing Area	3-42

### Subject Area 4: Waste

081-850-0141	Survey Refuse Waste Disposal Operations	3-45
081-850-0143	Inspect a Sanitary Landfill	3-48

### Subject Area 5: Entomology Control

081-850-0151	Collect Rodents	3-51
081-850-0152	Collect Arthropods	3-53
081-850-0153	Process Entomological Specimens for Storage	3-58
081-850-0154	Process Entomological Specimens for Shipment	3-62
081-850-0156	Conduct Pest Control Operations with Pesticides	3-65

### Subject Area 6: Environmental Quality

081-850-0161	Measure Sound Level	3-67
081-850-0162	Determine a WBGT Index	3-69
081-850-0163	Determine the Wind Chill Factor	3-71
081-850-0164	Inspect a Barber/Beauty Shop	3-73
081-850-0165	Inspect Troop Housing	3-76
081-850-0166	Inspect Field Hygiene Facilities	3-79
081-850-0167	Evaluate a Field Sanitation Team	3-83

## Section II. Skill Level 2 Tasks

## Subject Area 7: Sanitation

081-850-0271	Inspect Ice Manufacturing, Storage, and Distribution Facilities	3-86
081-850-0272	Inspect a Field Water Supply Point	3-90
081-850-0273	Perform a Pollution Survey of a Stream	3-96
081-850-0274	Inspect a Medical Treatment Facility's Infectious Waste Disposal Procedures	3-100

## Subject Area 8: Entomology

081-850-0281	Identify an Arthropod	3-103
081-850-0282	Identify a Rodent	3-104
081-850-0283	Identify a Nonrodent Vertebrate Pest	3-105
081-850-0284	Perform an Entomological Survey	3-106

## Subject Area 9: Industrial Hygiene

081-850-0291	Conduct a Limited Ventilation Survey	3-107
081-850-0293	Perform a Noise Hazard Survey	3-109
081-850-0294	Test for Airborne Toxic Substances	3-111
081-850-0295	Visually Inspect an Ionizing or Nonionizing Radiation Source	3-112

## Subject Area 10: Epidemiology

081-850-0202	Conduct a Foodborne Disease Illness Investigation	3-114
081-850-0203	Conduct a Malaria Investigation	3-116
081-850-0204	Conduct a Hepatitis Investigation	3-118
081-850-0205	Conduct a Venereal Disease Investigation	3-119

## Section III. Skill Level 3 Tasks

## Subject Area 11: Entomology Planning

081-850-0311	Manage an Entomological Field Survey	3-120
081-850-0312	Manage a Pest Control Program	3-121

## Subject Area 12: Preventive Medicine Procedures

081-850-0321	Select a Field Water Supply Source	3-123
081-850-0323	Conduct a Survey for Airborne Toxic Substances	3-125

**APPENDIX A Field Expedient Squad Book**

A-1

**APPENDIX B**

Arthropod Identification Key

B-1

Key to Common Rodents of the United States

B-13

Rabbits and Hares: Pictorial Key to Common United States Species

B-14

**GLOSSARY**

GLOSSARY-1

**REFERENCES**

REFERENCES-1

**PREFACE**

This publication is for skill level 1, 2, 3, 4, and 5 soldiers holding military occupational specialty (MOS) 91S and for trainers and first-line supervisors. It contains standardized training objectives, in the form of task summaries, to train and evaluate soldiers on critical tasks which support unit missions during wartime. Trainers and first-line supervisors should ensure soldiers holding MOS/SL 91S1/2/3/4/5 have access to this publication. It should be made available in the soldier's work area, unit learning center, and unit libraries.

This manual applies to both Active and Reserve Component soldiers.

The proponent of this publication is HQ, TRADOC. Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Academy of Health Sciences, ATTN: MCCS-HTI (TLS), 1750 Greeley Road, Ste 123, Fort Sam Houston, TX 78234-6122.

## CHAPTER 1

### INTRODUCTION

#### GENERAL

This manual identifies the individual MOS training requirements for soldiers in MOS 91S. Commanders, trainers, and soldiers should use it to plan, conduct, and evaluate individual training in units. This manual is the primary MOS reference to support the self-development and training of every soldier.

Use this manual with Soldier's Manuals of Common Tasks (STP 21-1-SMCT and STP 21-24-SMCT), Army Training and Evaluation Programs (ARTEPs), and FM 25-101, Battle Focused Training, to establish effective training plans and programs which integrate soldier, leader, and collective tasks.

#### SOLDIER'S RESPONSIBILITIES

Each soldier is responsible for performing individual tasks which the first-line supervisor identifies based on the unit's METL. The soldier must perform the task to the standards listed in the SM. If a soldier has a question about how to do a task or which tasks in this manual he or she must perform, it is the soldier's responsibility to ask the first-line supervisor for clarification. The first-line supervisor knows how to perform each task or can direct the soldier to the appropriate training materials.

#### NCO SELF-DEVELOPMENT AND THE SOLDIER'S MANUAL

Self-development is one of the key components of the leader development program. It is a planned progressive and sequential program followed by leaders to enhance and sustain their military competencies.

It consists of individual study, research, professional reading, practice, and self-assessment. Under the self-development concept, the NCO, as an Army professional, has the responsibility to remain current in all phases of the MOS. The SM is the primary source for the NCO to use in maintaining MOS proficiency.

Another important resource for NCO self-development is the Army Correspondence Course Program (ACCP). Refer to DA Pamphlet 351-20 for information on enrolling in this program and for a list of courses, or write to: Commandant, Academy of Health Sciences, ATTN: MCCA-HSN, Fort Sam Houston, TX 78234-6199.

Unit learning centers are valuable resources for planning self-development programs. They can help access enlisted career maps, training support products, and extension training materials. An NCO career development model for CMF 91 soldiers can be found on pages 1-3 and 1-4. Recommended certification and degree goals for MOS 91S soldiers are on page 1-4.

## **TRAINING SUPPORT**

This manual includes the following information which provides additional training support information.

- Appendix A, DA Form 5165-R (Field Expedient Squad Book). This appendix provides an overprinted copy of DA Form 5165-R for the tasks in this MOS. The NCO trainer can use this form to set up the leader book described in FM 25-101, appendix B. The use of this form may help preclude writing the soldier tasks associated with the unit's mission essential task list, and can become a part of the leader book.
- Appendix B. This appendix contains keys used in the identification of arthropods, rodents, and rabbits and hares.
- Glossary. The glossary, which follows the last appendix, is a single comprehensive list of acronyms, abbreviations, definitions, and letter symbols.
- References. This section contains two lists of references, required and related, which support training of all tasks in this SM. Required references are listed in the conditions statement and are required for the soldier to do the task. Related references are materials which provide more detailed information and a more thorough explanation of task performance.

<b>CMF 91</b>		<b>THE FOLLOWING ARE ONLY RECOMMENDATIONS.</b> It may not be feasible to complete recommended courses since assignments may preclude off-duty education. Alternate methods of achieving CMF course recommendations are possible (correspondence courses, examinations, and ACE-recommended credits). See an education counselor for assistance in completing recommended courses/ goals.				
<b>NCO CAREER DEVELOPMENT MODEL</b>						
<b>DEVELOPMENTAL ASSIGNMENTS</b>						
<b>RANKS</b>	<b>PVT-PFC SPC/CPL</b>	<b>SGT</b>	<b>SSG</b>	<b>SFC</b>	<b>MSG</b>	<b>SGM/CSM</b>
<b>SKILL LEVELS</b>	10	20	30	40	50	
<b>DUTY ASSIGNMENTS</b>		Recruiter/Retention Drill SGT		Observer/Controller		
		Team Leader		Operations/Intel SGT		
		Squad Ldr	Platoon SGT SGL/Instructor		First SGT	
<b>INSTITUTIONAL TRAINING</b>						
	BCT/AIT PLDC	BNCOC	ANCOC	Battle Staff NCO Course/1SG Course	Sergeants Major Course	
<b>SELF-DEVELOPMENT</b>						
<b>RECOMMENDED NCOES-RELATED COURSES AND ACTIVITIES</b>	<b>PRIOR TO PLDC</b>	<b>PRIOR TO BNCOC</b>	<b>PRIOR TO ANCOC</b>			<b>PRIOR TO SMC</b>
	English Composition	Communication Skills	Principles of Management			Research Techniques (Statistics)
	Basic Mathematics	Personnel Supervision	Organizational Behavior			Human ResourceMangement
	Computer Literacy	Behavioral Science	Information Mgt Systems			
		Stress Management	Technical Writing			
		Fundamentals of Speech	Health & Fitness			
		Maintenance Management				
		Records Management				
	Recommended Reading Standard: 10 Achieve Writing Standard (DA Pam 600-67)			Recommended Reading Standard: 12 Achieve Writing Standard (DA Pam 600-67)		

**STP 8-91S15-SM-TG**

<b>SKILL LEVELS</b>	<b>10</b>	<b>20</b>	<b>30</b>	<b>40</b>	<b>50</b>
<b>RECOMMENDED CMF-RELATED COURSES AND ACTIVITIES</b>	Medical Terminology	Human Growth & Development	Social Psychology	Adult Education Course	Budget & Finance
	Biology	Abnormal/ Adolescent Psychology	Principles of Instruction	Organizational Management	Health Care Planning/ Administration
	Chemistry	Counseling		Accounting	Marketing
	Physics (42E)	Foreign Language	Organizational Management	Hospital Administration	ACCP Continued
	Anatomy & Physiology	Educational Psychology	Economics	Health Care Law	
	Psychology & Sociology	Comparative Anatomy	Human Relations	Health Care Planning	
	Typing/Intro to Keyboards	ACCP Continued	Medical/Legal Ethics	Basic SDATS	
	Foreign Language	Computer Courses	Management Strategy	ACCP Continued	
	Consult Supervisor for appropriate correspondence courses (ACCP) for next level		Leadership Management	Continue Computer Courses	
Problem Solving					
ACCP Cont					
Continue Computer Courses					
<b>RECOMMENDED CERTIFICATION</b>	<b>RECOMMENDED AA/AS/AAS DEGREE</b>		<b>RECOMMENDED BACCALAUREATE DEGREE</b>		
Food Service Sanitation Certificate from National Restaurant Assn and/or National Registry of Environmental Health Technicians.  Soldier will establish own time frame for accomplishing certificate.	AA/AS in Environmental Studies or Health.  Complete 1 year college by 8th year of service.  Accomplish degree by 11th year of service.		Baccalaureate degree commensurate with MOS specialty or Health Care Administration Management.  Accomplish by 20th year of service.		

## CHAPTER 2

### TRAINER'S GUIDE (TG)

#### GENERAL

The TG identifies the essential components of a unit training plan for individual training. Units have different training needs and requirements based on differences in environment, location, equipment, dispersion, and similar factors. Therefore, the TG is a guide used for conducting unit training and not as a rigid standard.

The TG provides information necessary for planning training requirements for the MOS. The TG--

- Identifies subject areas in which to train soldiers.
- Identifies the critical tasks for each subject area.
- Specifies where soldiers are trained to standard on each task.
- Recommends how often to train each task to sustain proficiency.
- Recommends a strategy for cross-training soldiers.
- Recommends a strategy for training soldiers to perform higher level tasks.

#### BATTLE FOCUSED TRAINING

As described in FM 25-100, Training the Force, and FM 25-101, Battle Focused Training, the commander must first define the mission essential task list (METL) as the basis for unit training. Unit leaders use the METL to identify the collective, leader, and soldier tasks which support accomplishment of the METL. Unit leaders then assess the status of training and lay out the training objectives and the plan for accomplishing needed training. After preparing the long- and short-range plans, leaders then execute and evaluate training. Finally, the unit's training preparedness is reassessed, and the training management cycle begins again. This process ensures that the unit has identified what is important for the wartime mission, that the training focus is applied to the necessary training, and that training meets established objectives and standards.

#### RELATIONSHIP OF SOLDIER TRAINING PUBLICATIONS (STPs) TO BATTLE- FOCUSED TRAINING

The two key components of enlisted STPs are the Trainer's Guide (TG) and Soldier's Manual (SM). The TG and SM give leaders important information to help in the battle-focused training process. The TG relates soldier and leader tasks in the MOS and SL to duty positions and equipment. It provides information on where the task is trained, how often training should occur to sustain proficiency, and who in

## **STP 8-91S15-SM-TG**

the unit should be trained. As leaders go through the assessment and planning stages, they should use the TG as an important tool in identifying *what* needs to be trained.

The execution and evaluation of soldier and leader training should rely on the Armywide training objectives and standards in the SM task summaries. The task summaries ensure that soldiers in any unit or location have the same definition of task performance and that trainers evaluate the soldiers to the same standard. The diagram on the following page shows the relationship between battle-focused training and the use of the TG and SM. The left-hand side of the diagram (taken from FM 25-101) shows the soldier training process while the right side of the diagram shows how the STP supports each step of this process.

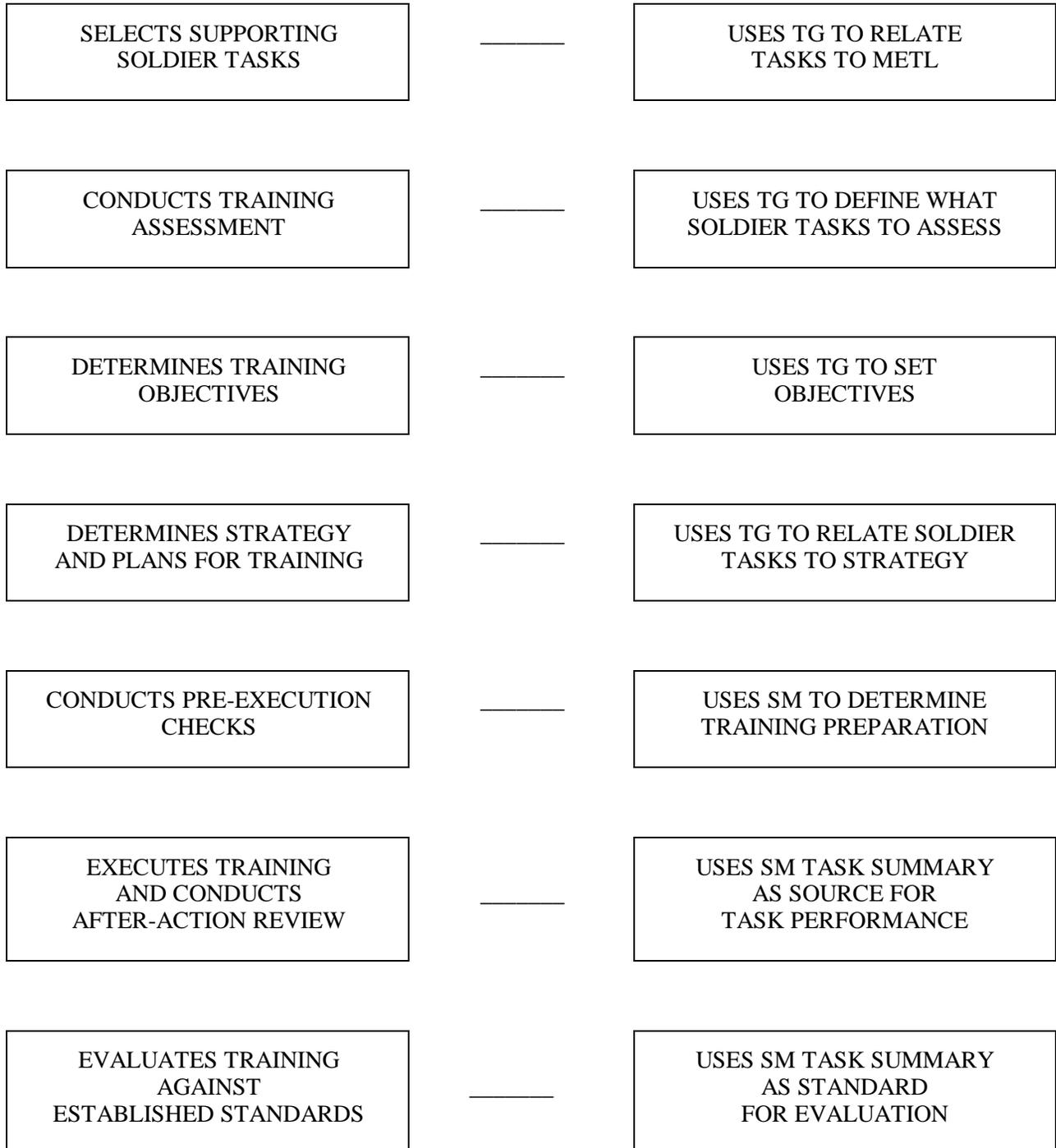
### **TRAINER'S RESPONSIBILITIES**

Training soldier and leader tasks to standard and relating this training to collective mission-essential tasks is the NCO trainer's responsibility. Trainers use the steps below to plan and evaluate training.

- Identify soldier and leader training requirements. The NCO determines which tasks soldiers need to train on using the commander's training strategy. The unit's METL and ARTEP and the MOS Training Plan (MTP) in the TG are sources for helping the trainer define the individual training needed.
- Plan the training. Training for specific tasks can usually be integrated or conducted concurrently with other training or during "slack periods." The unit's ARTEP can assist in identifying soldier and leader tasks which can be trained and evaluated concurrently with collective task training and evaluation.
- Gather the training references and materials. The SM task summary lists all references which can assist the trainer in preparing for the training of that task.
- Determine risk assessment and identify safety concerns. Analyze the risk involved in training a specific task under the current conditions at the time of scheduled training. Ensure that your training preparation takes into account those cautions, warnings, and dangers associated with each task.
- Train each soldier. Show the soldier how the task is done to standard, and explain step-by-step how to do the task. Give each soldier one chance to do the task step-by-step.
- Emphasize training in mission-oriented protective posture (MOPP) level 4 clothing. Soldiers have difficulty performing even the very simple tasks in a nuclear/chemical environment. The combat effectiveness of the soldier and the unit can degrade quickly when trying to perform in MOPP 4. Practice is the best way to improve performance. The trainer is responsible for training and evaluating soldiers in MOPP 4 so that they are able to perform critical wartime tasks to standards under nuclear/chemical environment.
- Check each soldier. Evaluate how well each soldier performs the tasks in this manual. Conduct these evaluations during individual training sessions or while evaluating soldier proficiency during the conduct of unit collective tasks. This manual provides an evaluation guide for each task to enhance the trainer's ability to conduct year-round, hands-on evaluations of tasks critical to the unit's mission. Use the

**BATTLE-FOCUS PROCESS**

**STP SUPPORT PROCESS**



## **STP 8-91S15-SM-TG**

information in the MTP as a guide to determine how often to train the soldier on each task to ensure that soldiers sustain proficiency.

- Record the results. The leader book referred to in FM 25-101, appendix B, is used to record task performance and gives the leader total flexibility on the method of recording training. The trainer may use DA Forms 5164-R (Hands-On Evaluation) and 5165-R (Field Expedient Squad Book) as part of the leader book. The forms are optional and locally reproducible. STP 21-24-SMCT contains a copy of the forms and instructions for their use.

- Retrain and evaluate. Work with each soldier until he or she can perform the task to specific SM standards.

### **EVALUATION GUIDE**

An evaluation guide exists for each task summary in the SM. Trainers use the evaluation guides year-round to determine if soldiers can perform their critical tasks to SM standards. Each evaluation guide contains one or more performance measures which identify what the trainer needs to observe to score a soldier's performance. Each step is clearly identified by a "P" (Pass) and "F" (Fail), located under the "Results" column on each evaluation guide. Some tasks involve a process which the trainer must observe as the soldier performs the task. For other tasks, the trainer must evaluate an "end product" resulting from doing the task. The following are some general points about using the evaluation guide to evaluate soldiers:

- Review the guide to become familiar with the information on which the soldier will be scored.
- Ensure that the necessary safety equipment and clothing needed for proper performance of the job are on hand at the training site.
- Prepare the test site according to the conditions section of the task summary. Some tasks contain special evaluation preparation instructions. These instructions tell the trainer what modifications must be made to the job conditions to evaluate the task. Reestablish the test site to the original requirements after evaluating each soldier to ensure that conditions are the same for each soldier.
- Advise each soldier of the information in the Brief Soldier section of the task summary before evaluating.
- Score each soldier according to the performance measures in the evaluation guide. Unless otherwise stated in the task summary, the soldier must pass all performance measures to be scored GO. If the soldier fails any steps, show what was done wrong and how to do it correctly.
- Record the date and task performance ("GO" or "NO-GO") in the leader book.

## TRAINING TIPS FOR THE TRAINER

### 1. Prepare yourself.

- Get training guidance from your chain of command on when to train, which soldiers to train, availability of resources, and a training site.

- Get the training objective (task, conditions, and standards) from the task summary in this manual.

- Ensure you can do the task. Review the task summary and the references in the reference section. Practice doing the task or, if necessary, have someone train you on the task.

- Choose a training method.

- Prepare a training outline consisting of informal notes on what you want to cover during your training session.

- Practice your training presentation.

### 2. Prepare the resources.

- Obtain the required resources identified in the conditions statement for each task.

- Gather equipment and ensure it is operational.

- Coordinate for use of training aids and devices.

- Prepare the training site according to the conditions statement and evaluation preparation section of the task summary, as appropriate.

### 3. Prepare the soldiers.

- Tell the soldier what task to do and how well it must be done. Refer to the standards statement and evaluation preparation section for each task as appropriate.

- Caution soldiers about safety, environment, and security.

- Provide any necessary training on basic skills that soldiers must have before they can be trained on the task.

- Pretest each soldier to determine who needs training in what areas by having the soldier perform the task. Use DA Form 5164-R and the evaluation guide in each task summary to make this determination.

### 4. Train the soldiers who failed the pretest.

## **STP 8-91S15-SM-TG**

- Demonstrate how to do the task or the specific performance steps to those soldiers who could not perform to SM standards. Have soldiers study the appropriate materials.
  - Have soldiers practice the task until they can perform it to SM standards.
  - Evaluate each soldier using the evaluation guide.
  - Provide feedback to those soldiers who fail to perform to SM standards and have them continue to practice until they can perform to SM standards.
5. Record results in the leader book.

### **MILITARY OCCUPATIONAL SPECIALTY TRAINING PLAN**

One of the key components of the TG is the MOS Training Plan (MTP). The MTP has two parts to assist the commander in preparing a unit training plan which satisfies integration, cross-train, train-up, and sustainment training requirements for soldiers in this MOS.

#### **PART ONE**

Part one of the MTP shows the relationship of an MOS SL between duty position and critical tasks. The critical tasks are grouped by task commonality into subject areas. Section I lists subject area numbers and titles used throughout the MTP. Section II defines the training requirements for each duty position within an MOS and relates duty positions to subject areas and cross-training and train-up/merger requirements.

- Duty position column--contains the MOS duty positions, by skill level, which have different training requirements.
- Subject area column--lists by subject area number, the subject areas in which the soldier must be proficient for that duty position.
- Cross-train column--lists the recommended duty position for which soldiers should be cross-trained.
- Train-up/merger column--lists the corresponding duty position for the next higher SL or MOS the soldier will merge into on promotion.

#### **PART TWO**

Part two lists by subject areas, the critical tasks to be trained in an MOS, task number, task title, location, sustainment training frequency, and training SL.

- Subject area column--lists the subject area number and title in the same order as in the MTP, Part One, Section I.

- Task number column--lists the task numbers for all tasks included in the subject area.
- Task title column--lists the task title.
- Training location column--identifies the training location where the task is first trained to STP standards. If the task is first trained to standard in the unit, the word "UNIT" will be in this column. If the task is first trained to standard in the training base, it will identify the resident course where the task was taught. Figure 2-1 contains a list of training locations and their brevity codes.

AIT	-	Advanced Individual Training
ANCOC	-	Advanced Noncommissioned Officer's Course
BCT	-	Basic Combat Training
BNCOC	-	Basic Noncommissioned Officer's Course
OSUT	-	One Station Unit Training
PLDC	-	Primary Leadership Development Course
SMC	-	Sergeants Major Course
UNIT	-	Trained in the Unit

**Figure 2-1**

- Sustainment training frequency column--indicates the recommended frequency at which tasks should be trained to ensure the soldier maintains task proficiency. Figure 2-2 identifies the frequency codes to use in this column.

AN	-	annually
BM	-	bimonthly (once every two months)
MO	-	monthly
QT	-	quarterly
SA	-	semiannually

**Figure 2-2**

- Sustainment training SL column--lists the SLs of the MOS for which soldiers must receive sustainment training to ensure they maintain proficiency to SM standards.
- A chart at the end of the MTP indicates the ARTEPs which the individual critical tasks support. This establishes the crosswalk between individual and collective training.

**MOS TRAINING PLAN**

**MOS 91S**

**PART I. SUBJECT AREAS AND DUTY POSITIONS**

**SECTION 1. SUBJECT AREA CODES**

- |                          |                                    |
|--------------------------|------------------------------------|
| 1. Food                  | 7. Sanitation                      |
| 2. Water                 | 8. Entomology                      |
| 3. Recreational Water    | 9. Industrial Hygiene              |
| 4. Waste                 | 10. Epidemiology                   |
| 5. Entomology Control    | 11. Entomology Planning            |
| 6. Environmental Quality | 12. Preventive Medicine Procedures |

**SECTION 2. DUTY POSITION TRAINING REQUIREMENTS**

	<b>DUTY POSITION</b>	<b>SUBJECT AREAS</b>	<b>CROSS TRAIN</b>	<b>TRAIN-UP/MERGER</b>
SL 1	Preventive Medicine Specialist	1-6	NA	91S2 Preventive Medicine NCO
SL 2	Preventive Medicine NCO	1-10	NA	91S3 Preventive Medicine NCO
SL 3	Preventive Medicine NCO	1-12	NA	NA
SL 4	Preventive Medicine NCO	1-12	NA	NA
SL 5	Preventive Medicine NCO	1-12	NA	NA

Part II CRITICAL TASKS

MOS 91S

Skill Level 1

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
1. Food	081-850-0111	Inspect a Food Service Facility	AIT	AN	1-4
	081-850-0112	Inspect a Field Food Service Facility	AIT	AN	1-4
	081-850-0113	Collect an Ice Sample for Bacteriological Analysis	AIT	AN	1-4
2. Water	081-850-0123	Collect a Treated Water Sample for Bacteriological Analysis	AIT	AN	1-4
	081-850-0124	Perform Bacteriological Analysis On Water Samples	AIT	AN	1-4
	081-850-0125	Perform Chemical Analysis on Water Samples Utilizing the Water Quality Analysis Set	AIT	AN	1-4
	081-850-0126	Perform a Chemical Agents Test on Water with an M272 Kit	AIT	AN	1-4
	081-850-0127	Inspect a Field Unit's Water Supply	AIT	AN	1-4
	081-850-0128	Perform an Inspection for Cross Connections	AIT	AN	1-4
3. Recreational Water	081-850-0131	Collect Bacteriological Samples from Swimming Pools	AIT	AN	1-4
	081-850-0132	Inspect a Swimming Pool	AIT	AN	1-4
	081-850-0133	Collect a Bacteriological Sample from a Natural Bathing Area/Waterway	AIT	AN	1-4
	081-850-0134	Inspect a Natural Bathing Area	AIT	AN	1-4
4. Waste	081-850-0141	Survey Refuse Waste Disposal Operations	AIT	AN	1-4
	081-850-0143	Inspect a Sanitary Landfill	AIT	AN	1-4
5. Entomology Control	081-850-0151	Collect Rodents	AIT	AN	1-4
	081-850-0152	Collect Arthropods	AIT	AN	1-4
	081-850-0153	Process Entomological Specimens for Storage	AIT	AN	1-4
	081-850-0154	Process Entomological Specimens for Shipment	AIT	AN	1-4
	081-850-0156	Conduct Pest Control Operations with Pesticides	AIT	AN	1-4
6. Environmental Quality	081-850-0161	Measure Sound Level	AIT	AN	1-4
	081-850-0162	Determine the WBGT Index	AIT	AN	1-4
	081-850-0163	Determine the Wind Chill Factor	AIT	AN	1-4
	081-850-0164	Inspect a Barber/Beauty Shop	AIT	AN	1-4
	081-850-0165	Inspect Troop Housing	AIT	AN	1-4
	081-850-0166	Inspect Field Hygiene Facilities	AIT	AN	1-4
	081-850-0167	Evaluate a Field Sanitation Team	AIT	AN	1-4

**STP 8-91S15-SM-TG**

**Part II CRITICAL TASKS**

**MOS 91S**

**Skill Level 2**

<b>Subject Area</b>	<b>Task Number</b>	<b>Title</b>	<b>Training Location</b>	<b>Sust Tng Freq</b>	<b>Sust Tng SL</b>
7. Sanitation	081-850-0271	Inspect Ice Manufacturing, Storage, and Distribution Facilities	UNIT	AN	2-5
	081-850-0272	Inspect a Field Water Supply Point	UNIT	AN	2-5
	081-850-0273	Perform a Pollution Survey of a Stream	UNIT	AN	2-5
	081-850-0274	Inspect a Medical Treatment Facility's Infectious Waste Disposal Procedures	UNIT	AN	2-5
8. Entomology	081-850-0281	Identify an Arthropod	UNIT	AN	2-5
	081-850-0282	Identify a Rodent	UNIT	AN	2-5
	081-850-0283	Identify a Nonrodent Vertebrate Pest	UNIT	AN	2-5
	081-850-0284	Perform an Entomological Survey	UNIT	AN	2-5
9. Industrial Hygiene	081-850-0291	Conduct a Limited Ventilation Survey	UNIT	AN	2-5
	081-850-0293	Perform a Noise Hazard Survey	UNIT	AN	2-5
	081-850-0294	Test for Airborne Toxic Substances	UNIT	AN	2-5
	081-850-0295	Visually Inspect an Ionizing or Nonionizing Radiation Source	UNIT	AN	2-5
10. Epidemiology	081-850-0202	Conduct a Foodborne Disease Illness Investigation	UNIT	AN	2-5
	081-850-0203	Conduct a Malaria Investigation	UNIT	AN	2-5
	081-850-0204	Conduct a Hepatitis Investigation	UNIT	AN	2-5
	081-850-0205	Conduct a Venereal Disease Investigation	UNIT	AN	2-5

**Part II CRITICAL TASKS**

**MOS 91S**

**Skill Level 3**

<b>Subject Area</b>	<b>Task Number</b>	<b>Title</b>	<b>Training Location</b>	<b>Sust Tng Freq</b>	<b>Sust Tng SL</b>
11. Entomology Planning	081-850-0311	Manage an Entomological Field Survey	BNCOC	AN	3-5
	081-850-0312	Manage a Pest Control Program	BNCOC	AN	3-5
12. Preventive Medicine Procedures	081-850-0321	Select a Field Water Supply Source	BNCOC	AN	3-5
	081-850-0323	Conduct a Survey for Airborne Toxic Substances	BNCOC	AN	3-5

## INDIVIDUAL TASK/ARTEP CROSSWALK

	057-30 267-30 437-30	456	498-30	611	657-30
081-850-0111			X		
081-850-0112	X	X	X		
081-850-0113	X	X	X		
081-850-0123	X	X	X		X
081-850-0124	X	X	X		X
081-850-0125	X	X	X		
081-850-0126	X	X	X		
081-850-0127	X	X	X		
081-850-0128	X	X	X		
081-850-0131					
081-850-0132					
081-850-0133			X		
081-850-0134			X		
081-850-0141	X	X	X		
081-850-0143	X	X	X		
081-850-0151	X	X	X		
081-850-0152	X	X	X		
081-850-0153	X	X	X		X
081-850-0154	X	X	X		X
081-850-0156	X	X	X		
081-850-0161					

**STP 8-91S15-SM-TG**

	057-30 267-30 437-30	456	498-30	611	657-30
081-850-0162			X		
081-850-0163			X		
081-850-0164			X		
081-850-0165			X		
081-850-0166			X		
081-850-0167	X				
081-850-0271			X		
081-850-0272			X		
081-850-0273			X		
081-850-0274			X		
081-850-0281			X		X
081-850-0282			X		X
081-850-0283			X		X
081-850-0284			X		
081-850-0291			X		
081-850-0293			X		
081-850-0294			X		
081-850-0295			X		
081-850-0202			X		X
081-850-0203			X		X
081-850-0204			X		X
081-850-0205			X		
081-850-0311			X	X	

	057-30 267-30 437-30	456	498-30	611	657-30
081-850-0312			X	X	
081-850-0321			X	X	
081-850-0323			X		X

**CHAPTER 3  
MOS SKILL LEVEL TASKS**

**SECTION I  
SKILL LEVEL 1 TASKS**

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**081-850-0111**

**INSPECT A FOOD SERVICE FACILITY**

**CONDITIONS**

You are required to inspect a garrison food service facility. Necessary materials and equipment: flashlights, a pocket thermometer, a clipboard, TB Med 530, and an inspection form.

**STANDARDS**

Report all sanitary deficiencies with recommendations for corrective action.

**TRAINING/EVALUATION**

*Training Information Outline*

1. Inspect food product protection.
  - a. Food has been purchased from an approved source.
  - b. All food, including ice, is protected against contamination. Particular attention is given to potentially hazardous food to avoid conditions conducive to bacterial growth.
  - c. Good sanitation practices are applied in the handling of food.
2. Take the product temperature.
  - a. Clean and sanitize the thermometer with an alcohol pad.
  - b. Insert the thermometer stem into the product, allow 4 to 5 minutes for the thermometer to stabilize, and read the temperature.

**NOTE:** The product temperature of foods being heated or being cooled should be taken at the geometric center of the food item. Food being thawed or tempered should be measured at the surface of the product.

## STP 8-91S15-SM-TG

### 3. Inspect food in dry storage.

- a. Storage racks are either 6 inches off the floor surface or easily moveable.
- b. The overhead is clear of water and sewer lines, except for fire sprinkler heads.
- c. Food must be covered and bulk food must be labeled.
- d. Food is stored in its original container. If transfer is required, the food storage container is labeled with the common name of the food.

**NOTE:** Containers used for the storage of transferred foods are provided with a plastic liner.

### 4. Inspect refrigerated foods.

- a. A thermometer, numerically scaled, is located in the warmest part of the refrigerator.
- b. Check the temperature control. The internal product temperature of potentially hazardous food (PHF) is 45° F or below.
- c. Frozen food is stored at a product temperature of 0° F or below. Food may be maintained at 10° F for a period not to exceed 7 days prior to preparation or tempering.
- d. Dissimilar meats and/or raw and cooked meats maintained in the same refrigeration unit are separated and/or properly covered to protect them from cross contamination.

### 5. Inspect food in heated storage.

- a. Equipment used for holding PHF is provided with a numerically indicating thermometer. If this is not practical, a thermometer is available to check the internal product temperature.
- b. Hot food items are maintained at 140° F or above while in storage and during transportation.

### 6. Inspect food preparation.

- a. The wearing of disposable gloves to minimize direct handling of food is recommended. When used, gloves are discarded frequently and replaced with a clean pair of gloves to prevent inadvertent contamination of food from soiled gloves or from perspiration buildup within the gloves.
- b. The cumulative time interval for holding PHF outside the safe temperature zone during preparation and serving does not exceed 3 hours.
- c. Fresh fruits and vegetables are not consumed raw in areas where human excreta is used as fertilizer or where gastrointestinal and parasitic diseases are prevalent except with the approval of the IMA.

**NOTE:** Fruits and vegetables must be thoroughly washed and disinfected before consumption by soaking them for 30 minutes in a 200 ppm chlorine solution. Fruits and vegetables from other areas are thoroughly washed and rinsed with potable water.

d. Poultry, poultry stuffing, stuffed meats, and stuffing containing meat will be cooked immediately after preparation to heat all parts of the food to at least 165° F, with no interruption of the cooking process. All such products should be cooked separately. Poultry should not be stuffed.

e. Pork and any food containing pork is cooked to heat all parts of the food to at least 150° F, 170° F when cooked in a microwave.

f. Cooked beef and roast beef are prepared by a cooking procedure that ensures a minimum internal temperature of 145° F for each piece. This requirement will eliminate the risk of salmonellosis from "rare" roast beef.

g. Whenever feasible, PHF is prepared from chilled ingredients to retard bacterial growth.

h. Pre-prepared food is rapidly chilled to an internal temperature of 45° F within 4 hours, is identified as "PRE-PREPARED," and labeled with the date and time of preparation. It is maintained in the appropriate refrigerated/frozen food environment continually after preparation.

7. Inspect procedures used for thawing frozen PHF.

a. PHF is thawed only in designated tempering units operated at an air temperature not to exceed 45° F, in general refrigeration units operated at an air temperature not to exceed 40° F, or as part of the conventional cooking process.

b. A microwave oven may be used to temper frozen PHF provided that foods are cooked immediately after tempering.

**NOTE:** Tempering frozen PHF may be accomplished under potable running water of a temperature of 70° F or below when authorized by the IMA. However, this is the least preferred method.

8. Inspect handling and retention of PHF leftovers.

a. Most gravies, hashes, creamed meats, dressings, and seafood are not retained as leftovers.

b. Leftover PHF must be held at safe temperatures, protected from contamination during serving by sneezeguards, served by authorized servers, or be individually wrapped or packaged.

c. Leftover PHF will be labeled as leftover using DA Label 178, with the time and date that it was removed from service. These food items may be held for 24 hours if chilled or 5 hours if maintained hot.

d. Chilled leftovers are reheated to 165° F prior to serving and are reoffered for service only once.

## STP 8-91S15-SM-TG

e. The freezing of leftover PHF is prohibited.

### 9. Inspect food service personnel and training.

a. Personnel are inspected daily before the start of each shift. Persons who exhibit signs of illness to include skin diseases, diarrheal illness, burns, boils, or cuts are referred to the IMA for evaluation. Such personnel must provide the food service supervisor with a written statement, signed by a physician, delineating their duty limitations.

b. All working personnel are furnished a clean uniform daily. Military personnel detailed by daily roster to work on the serving line or in food preparation areas wear light-colored aprons over clean duty uniforms.

**NOTE:** Custodial duty personnel may wear roundnecked T-shirts as an outer garment. These people will not handle or serve food.

c. Personnel thoroughly wash their hands and exposed portions of their arms at the beginning of the day, after using toilet facilities, after using tobacco, between handling soiled and clean utensils and equipment, between handling raw and cooked foods, and after performing custodial duties. Signs are posted to this effect.

d. All personnel are instructed in the principles and practices of foodborne illness prevention and in first aid for choking.

e. All food service supervisors have completed an approved formal training program in food sanitation. Educational programs, signs, and other instructional material should be developed and presented in the native language of the food service personnel.

### 10. Inspect equipment and utensil cleaning and sanitizing.

a. Food service equipment, such as cutting boards, knives, slicers, mixers, grinders, and food preparation sinks, is washed, rinsed, and sanitized after each usage and following any interruption of operation during which contamination may have occurred.

b. Deep fat fryers are drained, the fat strained, and internal surfaces wiped clean at the end of each day.

c. Sponges and sponge type cloths are prohibited for use. In addition, steel wool and steel wool pads are not used for cleaning food contact surfaces.

d. For manual washing, rinsing, and sanitizing, a sink with three compartments and with hot and cold potable running water is present as required.

(1) Equipment and utensils are washed in the first sink with hot soapy water (125° F).

(2) Then, they are rinsed free of detergent and abrasives with hot clean water (120° to 140° F) in a second sink.

(3) Finally, they are sanitized by immersion either for at least 30 seconds in clean hot water (at least 170° F), or for at least 1 minute in a clean solution containing at least 50 ppm of available chlorine or 12.5 ppm of available iodine at a temperature of at least 75° F but not more than 110° F.

**NOTE:** Iodine solution is preferred because of lower volatility and visible evidence of the presence of the active ingredient in solution.

- e. Clean and sanitized utensils and equipment are stored at least 6 inches above the floor.
- f. Utensils are air-dried before storage or stored in a self-draining position. Glasses and cups are stored inverted.
- g. Mechanical cleaning and sanitizing are conducted in accordance with TB Med 530, page 4-5.

11. Inspect the design and fabrication of equipment and utensils.

- a. All equipment and utensils are resistant to denting, buckling, pitting, chipping, and crazing.
- b. Food contact surfaces are easy to clean, smooth, and free of breaks, open seams, cracks, chips, pits, and similar imperfections.

12. Inspect garbage and refuse disposal procedures.

- a. Garbage and refuse containers are leak-proof, easy to clean, and insect- and rodent-proof.
- b. Containers stored outside the facility are provided with tight fitting lids, doors, or covers and are kept covered.
- c. Containers used in food preparation and utensil washing areas are kept covered when not in use.
- d. Outside storage of unprotected plastic bags or wet-strength paper bags or baled units containing garbage or refuse is prohibited.

13. Inspect toilet and handwashing facilities.

- a. In new facilities and renovations, separate toilet facilities are provided for patrons and staff.
- b. Doors to all toilet rooms are of tight fitting, self-closing, vermin-proof construction. These facilities do not open directly into any areas where food is stored, prepared, or served, or into utensil washing areas.

**STP 8-91S15-SM-TG**

c. Lavatories for food service personnel are located throughout food preparation areas, behind or adjacent to serving areas, within utensil washing areas, and within toilet rooms.

d. Sinks used for food preparation and/or washing of equipment and utensils are not used for handwashing.

e. Each lavatory is provided with hot and cold water, hand cleaning soap or detergent, and disposable towels.

14. Inspect construction and maintenance of food service facilities.

a. Floors and floor coverings are constructed of smooth, durable materials such as quarry tile, sealed concrete, or ceramic tile, and maintained in good repair.

b. Properly installed, trapped floor drains are provided in floors that are waterflushed for cleaning.

c. Walls and ceilings are light colored, nonabsorbent, and easy to clean.

d. The lighting requirements for a food service facility are met as follows: 50 foot candles on all food preparation areas and at equipment or utensil washing work levels; 30 foot candles for general illumination; 20 foot candles in utensil, equipment, and food storage areas; and 10 foot candles in walk-in refrigerators.

e. Exhaust rates for dishwashers, griddles, stoves, deep fat fryers, and other such equipment in existing facilities will be such a velocity to provide adequate capture and removal.

f. Lead-based paints have not been used in the food service facility.

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Inspect food product protection.	P	F
2. Take product temperatures.	P	F
3. Inspect food in dry storage.	P	F
4. Inspect refrigerated foods.	P	F
5. Inspect food in heated storage.	P	F
6. Inspect food preparation.	P	F
7. Inspect procedures used for thawing frozen foods.	P	F

- |                                                                                                                                                               |   |   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| 8. Inspect the handling and retention of PHF leftovers.                                                                                                       | P | F |
| 9. Inspect food service personnel and training.                                                                                                               | P | F |
| 10. Inspect equipment and utensil cleaning and sanitizing.                                                                                                    | P | F |
| 11. Inspect the design and fabrication of equipment and utensils.                                                                                             | P | F |
| 12. Inspect garbage and refuse disposal procedures.                                                                                                           | P | F |
| 13. Inspect toilet and handwashing facilities.                                                                                                                | P | F |
| 14. Inspect the construction and maintenance of the food service facility.                                                                                    | P | F |
| 15. Provide the food service supervisor with a written copy of all deficiencies noted and the appropriate recommendations needed to correct the deficiencies. | P | F |

**REFERENCES:**

*Required*

*Related*

TB Med 530

AR 40-5

**081-850-0112**

**INSPECT A FIELD FOOD SERVICE FACILITY**

**CONDITIONS**

Necessary materials and equipment: a flashlight, a pocket thermometer, a clipboard, TB Med 530, and an inspection form.

**STANDARDS**

Report all sanitary deficiencies with recommendations for corrective action.

**TRAINING/EVALUATION**

*Training Information Outline*

1. Inspect the transportation of food, if applicable.
  - a. Vehicles used for transporting food are clean and completely enclosed. Vehicles used for transporting garbage, trash, petroleum products, or similar materials are not used for transporting food unless the vehicles have been properly cleaned and sanitized.
  - b. If bulk quantities of meat and dairy products are to be transported over a considerable distance, refrigerated containers are used. Every unit has clean tarpaulins, boxes, or bags to protect food from contamination.
2. Inspect food storage.
  - a. Food is inspected by unit food service personnel immediately upon receipt.
  - b. Food products requiring refrigeration are stored at a temperature of 45° F (7° C) or below. When issued an ice chest, every effort is made to keep the temperature of the food stored in the ice chest below 50° F (10° C).
  - c. When serving cold or hot meals in the field, potentially hazardous food (PHF) is maintained at safe temperatures, 45° F or below and 140° F or above. Any temperature between 46° F and 139° F is in the DANGER ZONE.
  - d. The cumulative maximum time that PHF can be in the danger zone is 3 hours. Each separate period of time that PHF is in the danger zone adds to the 3 hour limit.

e. Insulated food containers are used when transporting PHF from a base camp to troops at other locations. These containers are preheated using boiling water. When correctly preheated, foods should remain at safe temperatures for 3 to 4 hours. Take the following steps for preheating:

- (1) Remove the inserts.
- (2) Pour 2 quarts/liters of boiling water into the container.
- (3) Close and let the container stand for at least 30 minutes.
- (4) Pour out enough water to provide room for the inserts.
- (5) Place hot food into the inserts and then place the inserts in the container.
- (6) Close and fasten the container lid.

**NOTE:** For cold foods, replace the boiling water with 2 quarts/liters of crushed ice and follow the same procedure.

3. Inspect food service personnel. (See task 081-850-0111.)
4. Inspect the serving line and procedures. (See task 081-850-0111.)
5. Inspect the dining area, if applicable. (See task 081-850-0111.)
6. Inspect the cleaning and sanitation of equipment and utensils.

a. Equipment and utensils are scraped free of food particles, washed in hot soapy water (120° F to 150° F), rinsed in one container of boiling water, and sanitized in another container of boiling water.

b. The equipment and utensils are allowed to air-dry and then are stored in a clean covered place to protect them from dust and vermin.

c. The mess kit laundry consists of four 32 gallon containers and is sufficient to serve 80 soldiers per meal. The following is the setup and operation of a mess kit laundry:

- (1) First can (waste can) for food scraps.
- (2) Second can (wash can - hot soapy water). A long handle brush is used to wash the utensils and mess kits in hot (120° F to 150° F) hand washing compound solution.
- (3) Third can (rinse can - clear boiling water). Utensils and mess kits are rinsed in the boiling water. They are dipped a few times to get the suds off, and then all excess water is shaken off.

## STP 8-91S15-SM-TG

(4) Fourth can (sanitizing can - clear boiling water). Items are dipped in the boiling water for at least 10 seconds to sanitize them. Excess water is shaken off and the items are air-dried.

**NOTE:** When heated water cannot be made available, a chlorine solution is used in the fourth can to sanitize equipment and utensils. Utensils should be washed in soapy water, rinsed in clear water, and disinfected in the fourth can. Items should be immersed for 30 seconds in the sanitizing solution. This method is sufficient to serve approximately 100 soldiers. Chemical sanitizers for the fourth can are mixed in the following manner:

- Food Service Disinfectant is used as specified by the label.
- Calcium hypochlorite should be used for emergencies. Use 3 MRE spoonfuls of calcium hypochlorite powder for every 10 gallons of water.
- Liquid chlorine bleach. Use 1 canteen cup of 5 percent liquid chlorine bleach in 32 gallons of water.

7. Inspect waste disposal and handwashing facilities.

8. Inspect insect and rodent control. The physical facilities where food is stored, prepared, and served are free of rats, mice, flies, roaches, ants, and other pests. Screening and rat-proofing methods are used to the greatest extent possible.

9. Prepare a report of findings with recommendations for corrective action.

### *Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Inspect the transportation of food, if applicable.	P	F
2. Inspect food storage.	P	F
3. Inspect food service personnel.	P	F
4. Inspect the serving line and procedures.	P	F
5. Inspect the dining area, if applicable.	P	F
6. Inspect the cleaning and sanitation of utensils and equipment.	P	F
7. Inspect waste disposal and handwashing facilities.	P	F
8. Inspect insect and rodent control.	P	F
9. Prepare a report of the findings with recommendations for corrective action.	P	F

**REFERENCES:**

*Required*

TB Med 530

*Related*

AR 40-5  
FM 8-34  
FM 10-23  
FM 21-10  
FM 21-10-1  
FM 8-250

081-850-0113

**COLLECT AN ICE SAMPLE FOR BACTERIOLOGICAL ANALYSIS**

**CONDITIONS**

Necessary materials and equipment: a wide mouth sterile bottle treated with sodium thiosulfate, an ice pick, tongs, and DD Form 686.

**STANDARDS**

Collect the sample properly and deliver it to the laboratory.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                                                                                                                     |   |   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| 1. Collect an ice sample.                                                                                                                                           | P | F |
| a. With a sterile ice pick, chip the ice block and let the ice chips fall into a sterile collection container without touching the lip of the container or the ice. |   |   |
| b. Collect ice chips or crushed ice from the production unit's storage bin or from bagged ice in storage, not from the core.                                        |   |   |
| c. Use tongs, ice scoops, and any other suitable sterile collecting devices.                                                                                        |   |   |
| 2. Prepare DD Form 686 for each sample collected.                                                                                                                   | P | F |
| 3. Attach DD Form 686 to each sample collected.                                                                                                                     | P | F |
| 4. Deliver the samples to the laboratory for analysis.                                                                                                              | P | F |

**REFERENCES:**

*Required*

*Related*

None

FM 8-250

081-850-0123

COLLECT A TREATED WATER SAMPLE FOR BACTERIOLOGICAL ANALYSIS

CONDITIONS

Necessary materials and equipment: a color comparator, a sterile sample bottle treated with sodium thiosulfate, an ice chest with ice, and DD Form 686.

STANDARDS

Collect the sample properly and deliver it to the laboratory.

TRAINING/EVALUATION

*Evaluation Guide*

Performance Measures

Results

- |                                                                                                                                                                                                                                |   |   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| 1. Open the tap and let the water flow long enough to pull in water from the water main. A flow for 5 to 7 minutes for a mixing faucet, 2 to 3 minutes for a cold faucet, and 2 minutes for a hot faucet should be sufficient. | P | F |
| 2. Determine the pH and chlorine residual, following the manufacturer's instructions for the color comparator used.                                                                                                            | P | F |
| 3. Record the pH, chlorine residual, and any other remarks pertaining to the sample on DD Form 686.                                                                                                                            | P | F |
| 4. Adjust the tap to produce a gentle, easy, smooth flow of water, thus preventing splashes from getting into the sample bottle and contaminating it.                                                                          | P | F |

**NOTE:** Samples should not be collected from faucets with aerators, swivels, or add-on devices unless these devices are removed prior to running water in this step.

- |                                                                                                                                                                                                                                          |   |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| 5. Collect the sample by removing the hood and screw cap from the sample bottle, holding them together to prevent the cap from becoming contaminated. Place the sample bottle under the flowing tap, filling it to the base of the neck. | P | F |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|

**NOTE:** Do not overfill the bottle and do not rinse the sample bottle before collecting the sample.

- |                              |   |   |
|------------------------------|---|---|
| 6. Replace the cap and hood. | P | F |
|------------------------------|---|---|

**STP 8-91S15-SM-TG**

**Performance Measures**

**Results**

7. Close the water tap and record any other information pertaining to the sample on DD Form 686, leaving blank those blocks to be completed in the laboratory, and attach the form to the sample bottle.

P F

8. Deliver the sample to the laboratory.

P F

**NOTE:** Unrefrigerated samples should be analyzed within 1 hour of collection. If samples are sent to the laboratory by courier, the elapsed time between collection and examination should not exceed 6 hours. The exception to the 6-hour rule is for samples mailed from distant installations. These samples may be held for up to 30 hours. Samples should be refrigerated at 40° F during transportation or during shipment.

**REFERENCES:**

*Required*

*Related*

None

Water Examination Methods  
TB Med 576

081-850-0124

## PERFORM BACTERIOLOGICAL ANALYSIS ON WATER SAMPLES

### CONDITIONS

You have a properly collected water sample. Necessary materials and equipment: a bacteriological water testing kit, M-Endo broth, ethanol, methanol, buffered distilled water, petri dishes with pads, a grease pencil, an alcohol burner, a dissecting microscope with light, and DD Form 686.

### STANDARDS

Correctly determine the presence or absence of coliform colonies and record the information on DD Form 686.

### TRAINING/EVALUATION

#### *Training Information Outline*

1. Inspect and prepare the bacteriological water testing kit.
  - a. Ensure that the portable incubator of the water testing kit that you are using is operating properly and that the working area is properly cleaned.
  - b. The water testing kit should contain the following items:
    - (1) A funnel and filter support assembly.
    - (2) A hand suction pump.
    - (3) A measuring cup.
    - (4) Forceps.
    - (5) Petri culture dishes.
    - (6) Absorbent pads.
    - (7) Membrane filter disks.
    - (8) Culture media
    - (9) Methanol.
    - (10) Distilled water.

## STP 8-91S15-SM-TG

2. Prepare fresh media, petri dishes, and sterile buffered dilution water for the day's testing.
    - a. If powder bulk media is available, follow the directions of the manufacturer.
    - b. If ampule media is available, use one ampule for each sample filtration.
    - c. Label the petri dishes to correspond with the sample numbers shown on DD Form 686 and position them on the work area.
      - d. Prepare stock buffer solution by dissolving 34.0 grams of potassium dihydrogen phosphate in 500 milliliters of distilled water. Adjust the pH to 7.2 ( $\pm 0.5$ ) using sodium hydroxide and dilute it to 1 liter with distilled water. Add 1.25 ml of stock buffer solution and 5 ml of magnesium chloride solution to 1 liter of distilled water. Autoclave this solution for 15 minutes.
  3. Sterilize the funnel and filter support assembly.
    - a. The preferred method of sterilizing the funnel and filter support assembly is in an autoclave. Wrap the funnel and filter holder separately and sterilize them in an autoclave at 121° C for 15 minutes.
    - b. Formaldehyde gas may also be used to sterilize the funnel and filter support assembly. Put methyl alcohol on a wick in the base of the assembly, ignite it, and close the unit. Since the methyl alcohol is completely oxidized in the closed unit, formaldehyde gas which is bactericidal is generated.
- NOTE:** In an emergency or in the field when an autoclave or sterilizer is not available, the funnel and filter holder may be sterilized by keeping them immersed in boiling water for 10 minutes.
4. Sterilize membrane filters, absorbent pads, and other required equipment.
    - a. Membrane filters and absorbent pads supplied in separate envelopes (10 to a package) are sterilized in the envelopes in an autoclave for 10 minutes at 121° C.
    - b. Plastic petri dishes (disposable) should not be reused unless there is an emergency. If this is the case, thoroughly wash the used plastic petri dishes and completely immerse them in a solution of 70 percent ethanol and 30 percent water for a minimum of 30 minutes. Once that is done, remove the dish halves aseptically, invert them on a dry sterile towel, and let them drain and air-dry thoroughly.
    - c. Glass petri dishes, pipets, and graduate cylinders to be used in the field should be sterilized. Dry heat sterilization at 170° F for at least 1 hour is preferred for most glassware. This requirement does not apply to disposable petri dishes and pipets which are already pre-sterilized and factory sealed. Sterilize glass petri dishes in an autoclave for 15 minutes at 121° C.
  5. Conduct bacteriological analysis on water samples.
    - a. Place and secure the filter in the hydrosol assembly. Shake and pour the sample into the funnel and apply vacuum to the hydrosol.

b. Rinse the funnel assembly (inner wall) with at least 20 milliliters of sterile buffered solution three times. Remove the filter from the hydrosol.

c. Place the filter into the petri dish and place the dish into the incubator grid side down. Samples should be incubated at 35° C ±0.5 degree for 20 to 24 hours. A high level of humidity (approximately 90 percent of relative humidity) must be maintained in the incubator.

6. Count the colonies.

a. Coliform colonies are dark, usually with a purplish-green metallic sheen. Count colonies on membrane filters using a stereoscopic microscope at 10X to 15X magnification. Preferably, place the petri dish on the microscope stage slanted at 45° and adjust the light source vertical to the colonies.

**NOTE:** Optimal colony density per filter is 20 to 200. If colonies are small and there is no crowding, a higher limit is acceptable.

b. To compute coliform density, report coliform density as total coliforms per 100 ml. Compute the count, using membrane filters with 20 to 80 coliform colonies and not more than 200 colonies of all types per membrane, by the following equation:

$$\text{Total coliform colonies per 100 ml} = \frac{\text{coliform colonies counted} \times 100}{\text{ml of sample filtered}}$$

7. Record the colony counts on DD Form 686.

***Evaluation Guide***

<b>Performance Measures</b>	<b>Results</b>	
1. Inspect and prepare the bacteriological water test kit.	P	F
2. Prepare fresh media, petri dishes, and sterile buffered dilution water for the day of testing.	P	F
3. Sterilize the funnel and filter support assembly.	P	F
4. Sterilize the membrane filters, absorbent pads, and other materials.	P	F
5. Conduct bacteriological analysis on the water sample.	P	F
6. Count the colonies.	P	F
7. Record the colony counts on DD Form 686.	P	F

**STP 8-91S15-SM-TG**

**REFERENCES:**

*Required*

None

*Related*

FM 8-250  
Water Examination Methods

081-850-0125

**PERFORM CHEMICAL ANALYSIS ON WATER SAMPLES UTILIZING THE WATER QUALITY ANALYSIS SET**

**CONDITIONS**

You have properly collected water samples. Necessary materials and equipment: a water quality analysis set, TM 5-6630-215-12, and DD Form 710.

**STANDARDS**

Correctly determine the chemical concentration in the water sample and record the information.

**TRAINING/EVALUATION**

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Check the equipment and supplies.	P	F
2. Prepare the water sample for specific analysis.	P	F
3. Prepare the apparatus for specific analysis.	P	F
4. Perform the test procedure.	P	F
5. Take the reading on the water sample.	P	F
6. Record the reading on DD Form 710.	P	F

<b>REFERENCES:</b>	<i>Required</i>	<i>Related</i>
	TM 5-6630-215-12	None

081-850-0126

**PERFORM A CHEMICAL AGENTS TEST ON WATER  
WITH AN M272 KIT**

**CONDITIONS**

You have properly collected water samples. Necessary materials and equipment: an M272 water testing kit, TM 3-6665-319-10, MOPP level 4 clothing and equipment, and additional required authorized MTOE (or CTA) equipment.

**STANDARDS**

Correctly determine the presence or absence of common chemical warfare (CW) agents without causing injury to yourself.

**TRAINING/EVALUATION**

*Evaluation Preparation*

Setup: This task is to be simulated using simulated test water. Under no circumstances are actual CW agents to be used for testing this task.

Brief soldier: Inform the soldier that the water to be tested contains chemicals which simulate the action of chemical warfare agents. Tell the soldier to test the water using the actual M272 water testing kit. Remind the soldier that the M272 kit contains dangerous chemicals and ensure that first aid items are present.

*Training Information Outline*

1. Perform preventive maintenance checks and services (PMCS) in accordance with TM 3-6665-319-10 before testing.

**CAUTION**

Some of the chemicals contained in the M272 kit are dangerous. Immediate first aid measures must be taken, if exposure occurs.

2. Assemble and prepare the kit for use.

3. Make appropriate modifications to the test procedure, if unusual test conditions are present.

- a. Water temperature below 50° F.
- b. Water temperature above 105° F.

- c. Freezing temperatures, wind, rain, or snow.
  - d. Nuclear, chemical, and biological contamination.
4. Put on protective clothing and equipment for MOPP level 4. (See STP 21-1-SMCT, task 031-503-1015.)
5. Conduct a Lewisite test.
- a. Remove the blue band tube packet from the kit. Take out one tube and return the packet to the kit.
  - b. Break off the ends of a blue band tube. Use the break marks at each end.
  - c. Remove the test bottle from the kit. Remove the stopper assembly from the bottle.
  - d. Insert the tube into the connector with the prongs away from the stopper.
  - e. Fill to the mark with water to be tested. Press the bottle back onto the case bottom holder.
  - f. Check the water temperature with a clean thermometer. If the water is colder than 50° F, follow the instructions for unusual test conditions.
  - g. Take one orange label zinc mix packet from the packet. Loosen the contents by working it between your fingers.
  - h. Tap the contents to the bottom (label side). Tear the packet at the notches and squeeze it open.
  - i. Add the zinc mix from the orange label packet. Insert the stopper assembly firmly into the bottle.

**CAUTION**

Do this step quickly to prevent gas from escaping. Make sure that the stopper is tight in the test bottle so that all gas goes through the detector tube.

- j. While you are waiting for zinc mix to react, do test 2 for a Nerve Agent.
  - k. When test 2 is done, remove the blue band tube from the stopper assembly. Compare the color of the beads with the Lewisite test colors on the instruction card. Yellow or brownish beads mean: **DANGER - Lewisite**. All white beads mean: **SAFE - No Lewisite**.
6. Conduct the nerve agent test.

## STP 8-91S15-SM-TG

- a. Remove one white label ticket from the kit. Tear open the packet on the notched side. Remove the silver-covered ticket.
- b. Fold back the loose end of the silver cover to the fold mark on the ticket so that only the white test patch is exposed.
- c. Dip the white patch into the test water. If water does not soak in, fold the silver cover back over the white patch and massage the ticket to wet it through.
- d. Check the water temperature with a clean thermometer. If the water is colder than 50° F, follow the instructions for unusual testing conditions.
- e. Remove the metal clip from the kit. Fold the silver cover over the patch and fold the ticket so that the silver cover is inside. Insert the clip and hold it in your fist for 3 minutes.
- f. Remove the ticket from the clip and pull the silver cover completely off, exposing the second patch.
- g. Rewet the white patch, fold the ticket at the fold mark, and press the two patches together. Reinsert the clip and hold it in your fist for 3 minutes.
- h. Remove the ticket from the clip and open it flat to show the patches. A white patch means: **DANGER - Nerve Agent**. A blue patch, matching or bluer than the test colors, means: **SAFE - No Nerve Agent**.

### 7. Conduct a cyanide agent test

- a. Remove the blue band tube packet from the kit. Take out one tube and return the packet to the kit.
- b. Break off both ends of a blue band tube. Use the break marks at each end.
- c. Remove the test bottle from the kit. Remove the stopper assembly from the bottle.
- d. Insert the tube into the connector with the prongs away from the stopper.
- e. Remove the vial with connector from the kit. Flip it open and remove one connector. Close the vial and return it to the kit.
- f. Attach the connector to the top of the blue band tube.
- g. Remove the red band tube packet from the kit. Take out one tube and return the packet to the kit.
- h. Break off both ends of a red band tube. Attach the tube to the top of the blue band tube with a connector.

i. Fill the bottle to the mark with the water to be tested. Press the bottle back into the case bottom holder.

j. Check the water temperature with a clean thermometer. If the water is colder than 50° F, follow the instructions for unusual testing conditions.

k. Take one yellow label salt mix packet from the kit. Loosen the contents between your fingers and tap them to the bottom of the packet.

l. Tear open the prepared yellow label salt mix packet and immediately add salt to the test water. Stir gently with a thermometer or carefully swirl the contents of the bottle to dissolve the salt.

m. Remove one green label tablet packet from the kit. Tear the packet open at the notches.

n. Add two tablets from the green label packet. Insert the stopper assembly firmly into the bottle.  
**NOTE:** If the white beads in the blue band (bottom) tube get wet, start over with new water and tubes.

o. Wait a full 5 minutes and remove the red band (top) tube. Compare the colors of the beads between the black portion and the red band with the cyanide test colors. If in doubt, compare it with an unused tube. Blue beads mean: **DANGER - Cyanide**. Yellow beads in the blue band (lower) tube also mean: **DANGER - Cyanide**. All white beads mean: **SAFE - No Cyanide**.

8. Conduct a mustard agent test.

a. Remove the connector from the top of the blue band tube and place it to the side. Pull the blue band tube out of the stopper assembly on the test bottle.

b. Remove the heater from the kit case. Insert the tube into the tube holder of the heater. Slide it in all the way, prongs last.

c. Insert the heater into the socket inside the case top. Swing out the windshield. Turn the back of the case into the wind. If very windy, use your body as a shield.

d. Remove a match from the match container and close the container. Light the match on the striker inside the kit lid.

e. Heat the tube holder with the flame of one match. Hold the flame to the metal portion of the heater. Wait 30 seconds after heating.

f. Remove the alkaline solution bottle from the case and unscrew the cap.

g. Hold the tube with the prongs down. Press the bottle tip against the blue band end of the tube and squeeze 1/4 inch of the alkaline solution into the tube end. Tap the tube with your finger. Twist the cap firmly on the alkaline solution bottle and return it to the kit.

**STP 8-91S15-SM-TG**

h. Compare the color of the beads with the mustard test colors on the instruction card. Purple beads mean: **DANGER - Mustard**. All white beads mean: **SAFE - No Mustard**. Ignore any tan color.

9. Report the results to your supervisor once for each test completed.

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Perform preventive maintenance checks and services.	P	F
2. Assemble and prepare the kit for use.	P	F
3. Make appropriate modifications to the test procedure if unusual test conditions are present.	P	F
4. Put on protective clothing and equipment for MOPP level 4.	P	F
5. Conduct a Lewsite agent test.	P	F
6. Conduct the nerve agent test.	P	F
7. Conduct a cyanide agent test.	P	F
8. Conduct a mustard agent test.	P	F
9. Report the results to your supervisor once for each test completed.	P	F

**REFERENCES:**

*Required*

TM 3-6665-319-10

*Related*

STP 21-1-SMCT

081-850-0127

## INSPECT A FIELD UNIT'S WATER SUPPLY

### CONDITIONS

Necessary materials and equipment: a color comparator, sterile sample bottles treated with sodium thiosulfate, DD Form 686, TB Med 577, a clipboard, and an inspection form or paper.

### STANDARDS

Report all sanitary deficiencies with recommendations for corrective action.

### TRAINING AND EVALUATION

#### *Training Information Outline*

1. Inspect the water containers.
  - a. Container appearance.
    - (1) The interior and exterior of the container are clean and in good repair.
    - (2) The exterior of the container is stenciled with the words POTABLE WATER ONLY.
  - b. Manhole covers.
    - (1) The manhole cover seals effectively to prevent contamination of the contents. Rubber gaskets are intact and do not have cracks, missing pieces, excessive dry rot, or an improper fit. The locking mechanism functions. The cover interior is not rusted and the insulation is not damaged.
    - (2) The pressure relief valve operates effectively. This valve may be tested by blowing into the bottom. The valve is operating effectively if air escapes through the holes in the top of the valve.
  - c. Dispensing spigots.
    - (1) All spigots function and the "T" handle that dispenses water from the tank to the spigots opens and closes freely.
    - (2) The protective box is intact and the locking devices for spigot covers function properly.
  - d. Drain
    - (1) The drain plugs are easily removable. Threads in the plug and drain hole are not stripped or damaged.

## STP 8-91S15-SM-TG

(2) Excessive pressure is not applied to remove the drain plug to prevent interior surface cracks around the drain hole.

(3) The plug is installed hand tight only and thread corrosion is removed at least semiannually.

e. The interior surface of stainless steel and aluminum tanks.

(1) Interior seams are free of rust. Rusted seams have been scrubbed with a nonmetallic brush using a nonabrasive, nonchlorinated cleanser and rinsed.

(2) The interior has not been painted or coated with any material.

**NOTE:** Cracks and dents that expose the polyurethane foam insulation are not permitted; the tank should be repaired.

f. Tanks with fiberglass interior surfaces.

(1) Stains resulting from rusting apparatus, the storage of unauthorized liquids, or improper painting are not permitted. Such stains are cleaned and disinfected in accordance with TM 9-2330-267-14&P, paragraph 3-7a.

(2) Chips and surface cracks covering greater than 10 percent of the interior are removed and the surface refinished.

### CAUTION

Cracks may harbor microbiological organisms which constitute a health hazard.

2. Check the chlorine residual.

a. This is done in accordance with the manufacturer's instructions provided with the color comparator.

b. When the unit water supply has been procured from a potable distribution point, the chlorine residual at the point of consumption is at least 1 ppm or at a higher level, if prescribed by the command surgeon.

c. When the unit must disinfect a raw water supply (such as a stream, pond, or other source of fresh water), the chlorine residual after disinfection at the point of consumption will be at least 5 ppm or at a higher level, if prescribed by the command surgeon.

3. Check soakage pits. Soakage pits have been constructed for each water container available at the unit.

4. Inspect emergency water containers.

**NOTE:** Units may be forced to use containers which are not approved for use with potable water. If that is the case, alternative containers to be considered for use, in order of priority, include nonpotable water containers, liquid food product containers, and fuel containers.

a. Nonpotable water containers. Containers normally used to haul nonpotable water for construction purposes may be used in support of rapid deployment forces, natural disaster assistance, or combat emergencies. Military nonpotable containers include the WD6S 6,000 gallon water distributor, the 1,000 gallon water distributor, and fire department water tankers.

b. Liquid food product containers. Civilian containers normally used to transport liquid food products may be used in support of natural disaster assistance or combat emergencies. These containers include those used to transport milk, syrups, juices, vegetable oils, molasses, wines, etc.

c. Fuel containers. These containers are only used in support of extreme emergencies during combat when potable and nonpotable water containers are not available. Cleaning and sanitizing of these units should be done in accordance with TB Med 577, page C-1.

5. Collect water samples from the water containers for bacteriological analysis. (See task 081-850-0123.)
6. Deliver the sample to the laboratory. (See task 081-850-0123.)
7. Perform bacteriological analysis on the water samples. (See task 081-850-0124.)
8. Prepare a checklist and/or report of findings with recommendations for corrective action.

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Inspect the water containers.	P	F
2. Check the chlorine residual.	P	F
3. Check the soakage pits.	P	F
4. Inspect emergency water containers.	P	F
5. Collect water samples from the water containers for bacteriological analysis.	P	F
6. Deliver the samples to the laboratory.	P	F
7. Perform bacteriological analysis on the water samples.	P	F

**STP 8-91S15-SM-TG**

8. Prepare a checklist and/or report of findings with recommendations for corrective action. P F

**REFERENCES:**

*Required*

TB Med 577

*Related*

TM 9-2330-213-14&P

TM 9-2330-267-14&P



## STP 8-91S15-SM-TG

### Performance Measures

### Results

3. Identify the cause of the cross connection. P F
- a. Backflow - any flow of nonpotable water or liquid into a potable water supply. This is also known as back pressure.
  - b. Back-siphonage - any backflow which is caused by negative pressure in the potable water supply system. Heavy fire demand, a break in the main line, and shut off for repairs are the major causes of back-siphonage.
4. Identify potential types of cross connections. P F
- a. Hose connections and extensions. These are common in water treatment plants, wash racks, and ice plants.
  - b. Over-rim submerged fixtures. These are common in laboratory sinks, tubs, and lavatories.
  - c. Under-rim submerged fixtures. These are common in food service facilities (dishwashers and steam tables).
  - d. Water and waste water lines. This is common when water and waste water lines are laid in close proximity below ground level.
5. Identify mechanisms for elimination or reduction of cross connections. P F
- a. Prevention of backflow and back-siphonage.
    - (1) Vertical air gap. The only absolute way to prevent cross connections is the physical separation of fixtures.
      - (a) Prevents backflow and back-siphonage.
      - (b) Can be used on a direct or inlet connection and for all substances (toxic or high hazard).
      - (c) Must be twice the diameter of the inlet.
      - (d) Must be a minimum of 1 inch in diameter.

**Performance Measures**

**Results**

(2) Reduced pressure principle (RPP) devices. These are also known as reduced pressure zone backflow preventers.

(a) May be used where water is subject to backflow and back-siphonage.

(b) Can be used in high hazard areas and especially where air gaps are impossible to install.

(3) Double check valve backflow preventers.

(a) May be used where water is subject to backflow and back-siphonage.

(b) Used in low hazard situations such as air, steam, or food.

b. Prevention of back-siphonage.

(1) Vacuum breakers.

(a) Atmospheric type - may only be used in connection to a nonpotable system where the vacuum breaker is never subject to backflow. These should not be used under continuous supply pressure.

(b) Pressure type - may only be used in connections to nonpotable systems where the vacuum breaker is never subject to backflow. These devices may be used under continuous supply pressure.

**NOTE:** These devices will not prevent backflow.

(2) Education of personnel.

6. Prepare a checklist and/or report of findings with recommendations for corrective action.

P F

**REFERENCES:**

*Required*

*Related*

None

FM 8-250

081-850-0131

COLLECT BACTERIOLOGICAL SAMPLES FROM SWIMMING POOLS

CONDITIONS

Necessary materials and equipment: a color comparator, sterile sample bottles treated with sodium thiosulfate, an ice chest with ice, and DD Form 686.

STANDARDS

Collect the samples properly and deliver them to the laboratory.

TRAINING/EVALUATION

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| 1. Check the equipment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | P | F |
| 2. Prepare to collect the sample.                                                                                                                                                                                                                                                                                                                                                                                                                                                        | P | F |
| a. Collect samples for bacteriological examination and concurrent pH and chlorine residual measurements at least once a week. Collect samples from both the deep and shallow ends during the periods of heaviest swimming loads.                                                                                                                                                                                                                                                         |   |   |
| b. Use clean collection bottles which have a wide mouth. They should be sterilized and made of borosilicate glass or autoclavable polypropylene plastic with suitable tops.                                                                                                                                                                                                                                                                                                              |   |   |
| c. Sodium thiosulfate must be added to the bottles before sterilization to retard the action of the chlorine prior to bacteriological examination of the sample collected. Sodium thiosulfate can be added as crystals (0.02 to 0.05 grams dry weight), or a sterile solution (approximately 0.1 ml of a 10 percent solution for a 120 ml sample). This solution should be clear, free of microorganisms, and stored in the dark. Fresh solutions should be prepared at least quarterly. |   |   |
| 3. Collect the sample.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | P | F |
| a. Remove the cap or stopper from the bottle without touching either the inner surfaces of the stopper or the top of the bottle. Hold the sterile bottle near its base and at a 45° angle.                                                                                                                                                                                                                                                                                               |   |   |

**Performance Measures**

**Results**

b. Fill in one slow sweep, going down through the water with the mouth of the bottle always ahead of the hand. Avoid contamination of the sample by floating debris, and replace the stopper or cap. Never rinse the bottle in the pool because the sodium thiosulfate will be removed.

4. Record the collection data at each sampling point on DD Form 686. P F

5. Attach DD Form 686 to each sample. P F

6. Deliver the samples to the laboratory. P F

a. Deliver unrefrigerated samples to be examined within 1 hour.

b. Deliver refrigerated samples to be examined within 6 hours, but, in no instance, more than 30 hours after collection.

c. Transport samples to the laboratory in a clean ice chest, protecting them from exposure to high temperatures and gross outside contamination.

**REFERENCES:**

*Required*

None

*Related*

TB Med 575  
Water Examination Methods

081-850-0132

## INSPECT A SWIMMING POOL

### CONDITIONS

Necessary materials and equipment: a clipboard, a color comparator, a sterile sample bottle treated with sodium thiosulfate, an ice chest with ice, a thermometer, DD Form 686, TB Med 575, and an inspection form.

### STANDARDS

Report all deficiencies with recommendations for corrective action.

### TRAINING/EVALUATION

#### *Training Information Outline*

1. Inspect pool construction.

a. New construction pre-opening inspection. Approximately 30 days before opening, representatives of the IMA and Directorate of Engineering and Housing (DEH), the installation safety officer, and Community Activities shall perform a pre-opening inspection of a newly constructed swimming pool. The purpose of this inspection is to ensure that it meets the prescribed standards and that procedures are established to provide for the effective sanitary control and safety of the facility. The facility will not open until the deficiencies noted are corrected.

b. Annual inspection. Approximately 30 days before opening, representatives of the IMA and Directorate of Engineering and Housing (DEH), the installation safety officer, and Community Activities shall perform a thorough annual inspection of all swimming facilities to provide for safe and healthful swimming. Indoor facilities operated year-round should be inspected at a specified time, preferably 30 days prior to the start of heavy seasonal use. Facilities will not open until noted deficiencies are corrected.

**NOTE:** The IMA will conduct routine periodic inspections of all swimming pools to determine if the sanitary control and safety of these facilities meets or exceeds the minimum prescribed requirements. During periods of heavy use, the inspections should be conducted on a weekly basis. Special attention should be given to the chlorine residual, pH, turbidity, and water temperature.

2. Inspect the chlorine room.

a. The chlorine storage area should be isolated from other swimming pool areas.

b. All chlorine cylinders are secured to prevent rolling or falling. Empty containers are segregated from the full and tagged. Cylinders are not stored near ventilation system motors, heat sources, or areas of

elevated temperatures. Cylinders are stored above the ground in a well-ventilated area separated from the pool and other occupied areas by a gas tight partition.

c. Exhaust grills are located no more than 6 inches above floor level to ventilate the room at a rate of one air change every 2 minutes. The ventilated air is exhausted to the outdoors and not into the interior areas.

d. Mechanical ventilation in above ground chlorination facilities may be provided to reduce any unnecessary exposure in case of leakage or spill of chlorine. The vapor tight fan switch is located outside the room and the switch equipped with an indicator light. All doors are hinged to open outward to permit the operators to look into the room before entering.

e. The following warning sign is affixed in a readily visible location at or near entrances to the chlorination room:

**CAUTION**  
**CHLORINE HAZARD AREA**  
**UNAUTHORIZED PERSONS KEEP OUT.**  
**CAUSES BURNS, SEVERE EYE HAZARD,**  
**MAY BE FATAL IF INHALED.**  
**IN CASE OF EMERGENCY OR**  
**SUSPECTED LEAK CALL**  
(Insert the emergency telephone number)  
**TURN ON EXHAUST FAN**  
**PRIOR TO ENTRY**

**CAUTION**

Personnel entering the area for routine inspections shall wear chemical goggles. In addition, when changing or adjusting the system, personnel will wear impervious gloves and chemical goggles.

f. Facilities that utilize chlorine cylinders and are not equipped with automatic chlorine alarms, have a small squeeze bottle of diluted ammonium hydroxide placed outside the area. A small amount is squirted

## STP 8-91S15-SM-TG

into the chlorine room prior to entry. If a "snow" forms, a chlorine leak exists and emergency notification of the leak will be made.

**NOTE:** The squeeze bottle must be labeled as follows: FOR CHLORINE LEAK DETECTION. AMMONIUM HYDROXIDE CAUSES BURNS TO SKIN, EYES.

g. Personnel who enter the chlorination room to perform visual adjustment and inspection of the cylinder and system and to change cylinders carry a NIOSH-approved 5 to 10 minute escape only respirator. All personnel who are required to wear respiratory protection, including escape only respirators, are medically cleared, trained, and, if appropriate, fitness tested and enrolled in the respiratory protection program.

h. An eye lavage and deluge shower are provided at the chlorination facility.

3. Check the frequency of water turnover.

a. The wading pool is provided with a continuous flow of treated water for a complete change of water every 2 hours.

b. Spray pools are sprayed with treated water, and then drained or recycled into a filtration system.

4. Check the bather load.

a. The shallow area should comprise approximately 70 percent of the total pool area.

b. One bather for each 15 square feet of shallow, instructional, or wading area (less than 5 feet deep).

c. One bather for each 25 square feet of deep swimming area, not counting the diving area.

d. One bather for each diving area which is defined as 300 square feet of deep area.

e. Determine the bather load by calculating the pool area per swimmer requirement for each of the three specified areas.

Total pool area = 50 (width) x 100 (length) = 5,000 sq ft

Diving area = 300 sq ft per 1 person

Nonswimming area

.7 x 5,000 = 3,500 sq ft

3,500 ÷ 15 sq ft per person = 233 people

**NOTE:** If the shallow area is less than 70%, use that value to determine the nonswimming area.

Swimming area

$$5,000 - (300 + 3,500) = 1,200 \text{ sq ft}$$
$$1,200 \div 25 \text{ sq ft per person} = 48 \text{ people}$$

$$\text{Maximum bather load} = 1 + 233 + 48 = 282$$

5. Check for the required number of lifeguards.

a. Two lifeguards are required for the first 150 swimmers or less, plus one additional lifeguard for each additional 75 swimmers or less.

b. One lifeguard may be enough to observe a small group of bathers (15 to 20 persons) in a small swimming facility, but this policy should be jointly determined by the IMA and the DPCA.

c. Lifeguards are certified in first aid and cardiopulmonary resuscitation.

6. Inspect the lifesaving equipment.

a. Each pool is provided with one or more poles, each greater than one half of the pool width. In addition, they have at the end a blunt hook with an aperture of at least 18 inches.

b. There is one or more flutter boards, each approximately 1 foot by 3 feet, capable of supporting a minimum weight of 20 pounds.

c. There are one or more throwing-ring buoys having a maximum diameter of 15 inches, with a 3/16 inch line attached at least equal in length to the maximum width of the pool. Also, a separate throwing rope with a length not less than 1/2 the maximum width of the pool is furnished.

d. The items listed in steps 6a, 6b, and 6c are provided on the basis of one each for every 2,000 square feet of pool surface or fraction thereof.

e. There are elevated lifeguard platforms or chairs on the basis of one per 2,000 square feet of pool surface area or fraction thereof.

f. The facility has a complete first-aid kit, stretcher, blankets, and standard plywood backboard made to the specifications of the American Red Cross.

7. Inspect the equipment location.

a. Equipment is mounted in conspicuous places and distributed around the pool deck at the lifeguard chair, or elsewhere.

b. Equipment is kept in good repair and instructions for the equipment function should be visible. Bathers or other unauthorized personnel are not permitted to tamper with or use equipment for any purpose other than its intended use.

**STP 8-91S15-SM-TG**

c. A telephone is provided at each bathing facility for emergency use. Emergency information posted at the telephone location includes the telephone numbers to the nearest ambulance service, hospital, military police, fire rescue unit, and DEH emergency assistance.

8. Inspect the bathhouse.

a. Floors are scrubbed daily and disinfected with a 50 mg/L chlorine solution, as needed to control the growth of fungi.

b. One shower head is provided for every 50 persons of each sex based on the maximum bather load. At least two shower heads are provided for each sex.

c. One water closet is provided for every 40 female bathers or fraction thereof. One water closet plus one urinal is provided for every 60 male bathers or fraction thereof.

d. In addition to the above fixtures, wet toilets for wet swimmers are provided: one wet toilet for men consisting of one water closet and one urinal and one wet toilet for women consisting of two water closets for the first 200 swimmers. An additional water closet is provided, for both male and female, in facilities for over 200 swimmers.

e. One lavatory is provided for every 60 persons of each sex.

9. Check the general sanitation.

10. Collect water samples for bacteriological analysis. (See task 081-850-0131.)

11. Prepare a report of findings with recommendations for corrective action.

***Evaluation Guide***

**Performance Measures**

**Results**

1. Inspect pool construction.	P	F
2. Inspect the chlorine room.	P	F
3. Check the frequency of water turnover.	P	F
4. Check the bather load.	P	F
5. Check for the required number of lifeguards.	P	F
6. Inspect the lifesaving equipment.	P	F
7. Inspect the equipment location.	P	F

<b>Performance Measures</b>	<b>Results</b>
8. Inspect the bathhouse.	P F
9. Check the general sanitation.	P F
10. Collect water samples for bacteriological analysis. (See task 081-850-0131.)	P F
11. Prepare a report of findings with recommendations for corrective action.	P F

**REFERENCES:**

*Required*

*Related*

TB Med 575

TM 5-662

081-850-0133

**COLLECT A BACTERIOLOGICAL SAMPLE FROM A NATURAL BATHING AREA/WATERWAY**

**CONDITIONS**

Necessary materials and equipment: a sterile sample bottle, an ice chest with ice, and DD Form 686.

**STANDARDS**

Collect the sample properly and deliver it to the laboratory.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                                                                                                                                                                                                                                          |   |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| 1. Check the equipment.                                                                                                                                                                                                                                                                  | P | F |
| 2. Prepare to collect the sample.                                                                                                                                                                                                                                                        | P | F |
| a. Collect samples for bacteriological examination and concurrent pH measurement at least once a week. Collect samples at least 25 feet from shore, in water at least 2 1/2 feet deep, and in an area representative of the bathing water during the periods of heaviest swimming loads. |   |   |
| b. Use clean collection bottles that have a wide mouth. They should be sterilized and made of borosilicate glass or polypropylene (autoclavable) plastic with suitable tops.                                                                                                             |   |   |
| 3. Collect the sample.                                                                                                                                                                                                                                                                   | P | F |
| a. Remove the cap or stopper from the bottle without touching either the inner surfaces of the stopper or the top of the bottle. Hold the sterile bottle near its base and at a 45° angle.                                                                                               |   |   |
| b. Fill in one slow sweep, going down through the water with the mouth of the bottle always ahead of the hand, moving the bottle against the current. Avoid contamination of the sample by floating debris, and replace the stopper or cap.                                              |   |   |
| 4. Record the collection data at each sampling point on DD Form 686.                                                                                                                                                                                                                     | P | F |
| 5. Attach DD Form 686 to each sample.                                                                                                                                                                                                                                                    | P | F |

**Performance Measures**

**Results**

6. Deliver the samples to the laboratory for examination.
- a. Deliver unrefrigerated samples within 1 hour.
  - b. Deliver refrigerated samples within 6 hours, but, in no instance, more than 30 hours after collection.
  - c. Transport samples to the laboratory in a clean ice chest, protecting them from exposure to high temperatures and gross outside contamination.

P F

**REFERENCES:**

*Required*

*Related*

None

TB Med 575

**081-850-0134**

**INSPECT A NATURAL BATHING AREA**

**CONDITIONS**

Necessary materials and equipment: sterile sample bottles, an ice chest with ice, a boat or waders, DD Form 686, and an inspection form.

**STANDARDS**

Report all deficiencies with recommendations for corrective action.

**TRAINING/EVALUATION**

*Training Information Outline*

1. Check the safety of the natural bathing area.
  - a. Swimmers are supervised at all times.
  - b. Suitable rescue equipment is readily available.
  - c. Water is free of chemicals and other biological contaminants.
2. Check the bottom of the natural bathing area.
  - a. It slopes gently and uniformly toward deep water. In addition, it should have no holes and sudden steps-offs.
  - b. It is free of hidden/submerged obstructions, such as rocks, stumps, snags, and sunken logs.
  - c. It is composed of firm sand, small-sized gravel, or shale. Silt, quicksand, shell patches, sharp or broken rocks, or debris in depths of 5 feet or less are not permitted.
3. Check the site.
  - a. The site is away from pollution sources, such as waste water discharge. In addition, areas with native populations of waterfowl should be avoided to decrease the chances of contaminating the beach with pathogenic bacteria such as salmonella.
  - b. Adequate water circulation is required to minimize high bacterial counts that may occur when a large number of swimmers are in the water. In addition, good water circulation will generally remove surface debris such as weeds or other floating devices.

4. Check the marking and posting of the area.
  - a. Areas for various classes of swimmers are clearly marked and defined.
  - b. Swimming areas are marked at regular intervals at their outermost limits with buoys or similar devices bearing signs warning all watercraft to keep out.
  - c. Signs are posted on offshore floats or rafts indicating whether or not diving is permitted.
  - d. Signs are posted at marine bathing beaches to warn swimmers of the possible presence of harmful aquatic life, such as jellyfish and the portuguese man-of-war.
5. Check the general sanitation of the area.
  - a. Beach areas are kept clean and well-raked at all times.
  - b. Picnicking, bottles, and cans for food on the beach proper are prohibited.
  - c. All designated picnic areas are provided with waste receptacles.
6. Check the number of lifeguards, qualifications, and equipment.
  - a. As a minimum, one lifeguard is assigned to every 200 feet of beach.
  - b. Whenever the natural bathing area is open for use, at least two qualified lifeguards are on duty, one stationed in a lifeguard tower or elevated chair. Heavily patronized natural bathing areas have one lifeguard tower or elevated chair for every 200 feet of beach or fraction thereof. Also, one lifeguard is provided in a boat for every 1,000 feet of beach.
  - c. Lifeguards are certified in first aid and CPR (American Red Cross Advance Lifesaving or Water Safety Instructor Certificate).
  - d. Each lifeguard is equipped with a whistle or megaphone, umbrella, sunglasses, and a wide-brimmed helmet.
  - e. While on duty, lifeguards do not perform any other duties and shall not be in the water except in the line of duty.
  - f. The following lifesaving equipment is made available to all lifeguards:
    - (1) A light surfboard, kept in the immediate vicinity of each lifeguard tower.
    - (2) One or more throwing lines with a ring-buoy attached, having a maximum diameter of 15 inches with a 75 foot line. One will be kept at each lifeguard tower.

**STP 8-91S15-SM-TG**

- (3) A swimming rescue buoy shall also be kept at each lifeguard post.
  - (4) One American Red Cross 24-unit first-aid kit, or equivalent.
  - (5) A plywood board made IAW the American Red Cross specifications.
7. Check the first-aid room.
- a. There is a cot or bed equipped with blankets, mouth-to-mouth tubes, and additional first-aid equipment.
  - b. A telephone is available with a listing of emergency telephone numbers.
8. Collect water samples for bacteriological examination.
9. Prepare a report of findings with recommendations for corrective action.

***Evaluation Guide***

<b>Performance Measures</b>	<b>Results</b>	
1. Check the safety of the natural bathing area.	P	F
2. Check the bottom of the natural bathing area.	P	F
3. Check the site.	P	F
4. Check the marking and posting of the area.	P	F
5. Check the general sanitation of the area.	P	F
6. Check the number of lifeguards, qualifications, and equipment.	P	F
7. Check the first-aid room.	P	F
8. Collect water samples for bacteriological examination.	P	F
9. Prepare a report of findings with recommendations for corrective action.	P	F

**REFERENCES:**

***Required***

None

***Related***

TB Med 575

**081-850-0141**

**SURVEY REFUSE WASTE DISPOSAL OPERATIONS**

**CONDITIONS**

Necessary materials and equipment: a clipboard, AR 420-47, and a survey form.

**STANDARDS**

Report all sanitary deficiencies with recommendations for corrective action.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

1. Check personnel.

P F

a. Personnel with refuse handling duties are assigned to regular schedules for maximum operating efficiency.

b. Prisoners do not operate the loading or compacting mechanism of special equipment or solid waste collection vehicles because of irregular availability and temporary assignment.

c. A ground guide or rearviewing, closed-circuit camera is used to assist the driver in the collection of solid waste in family housing areas.

2. Check the collection equipment.

P F

a. Vehicles used for collecting and transporting solid waste are enclosed or have suitable covers to avoid spills while in transit.

b. When weather permits, trucks used for collecting materials that are subject to rotting are washed after use. Wash racks used for this purpose will be connected to a sanitary sewer.

c. Collection equipment is kept clean to prevent propagating or attracting vectors and creating nuisances.

d. The types of equipment used to collect, store, and transport solid wastes are:

(1) Rear-loading compaction equipment.

**STP 8-91S15-SM-TG**

**Performance Measures**

**Results**

- (2) Side-loading compaction equipment.
  - (3) Front-loading compaction equipment.
  - (4) Tilt-frame equipment.
  - (5) Hoist-type equipment.
  - (6) Satellite vehicles.
  - (7) Special collection and compaction equipment.
  - (8) Stationary compaction equipment.
3. Check the storage of refuse waste. P    F
- a. Solid waste.
    - (1) It is not a fire, health, or safety hazard.
    - (2) It does not provide food or harborage for disease vectors, such as flies, mosquitos, and rodents.
    - (3) It is contained or bundled to prevent spills.
  - b. Food waste is stored securely in covered containers that are nonabsorbent, leak-proof, durable, easy to clean (if reusable), and designed for safe handling.
4. Check the food waste containers. P    F
- a. Containers are large enough and in sufficient numbers to hold all food wastes, rubbish, and ashes from residences or establishments for the period of time between collections.
  - b. Containers are kept clean so they are not a nuisance and do not harbor, feed, or breed vectors.
  - c. Containers are emptied completely of all solid waste when serviced.
  - d. Containers are sturdy enough to be leak-proof and not easily damaged.
  - e. Dumpsters marked "Unauthorized" are not entered by unauthorized personnel for any reason.

<b>Performance Measures</b>	<b>Results</b>
<ul style="list-style-type: none"> <li>f. Reusable waste containers emptied by hand do not exceed 75 pounds when filled.</li> </ul>	
<ul style="list-style-type: none"> <li>5. Check the frequency of collection.                             <ul style="list-style-type: none"> <li>a. Garbage.                                     <ul style="list-style-type: none"> <li>(1) Garbage is collected from dining and similar facilities daily.</li> <li>(2) Garbage is collected from family quarters at least once per week.</li> </ul> </li> <li>b. Trash, ashes, and debris generated by all facilities are collected once per week.</li> </ul> </li> </ul>	P F
<ul style="list-style-type: none"> <li>6. Check the garbage can washing facilities.                             <ul style="list-style-type: none"> <li>a. Each facility is connected to a sanitary sewer system.</li> <li>b. The concrete washing pad is not less than 6 feet square.</li> <li>c. The concrete slab has a low, raised curb to prevent overflow of wash water.</li> <li>d. A central screened drain of 4 inches or larger with a grease trap is present.</li> <li>e. Soap and hot water are available.</li> </ul> </li> </ul>	P F
<ul style="list-style-type: none"> <li>7. Check the grease traps.                             <ul style="list-style-type: none"> <li>a. The indoor grease trap is operated and maintained by the grease generator. Facilities Engineering is responsible for the repair.</li> <li>b. Outdoor grease traps are monitored, operated, maintained, and repaired by Facilities Engineering.</li> </ul> </li> </ul>	P F
<ul style="list-style-type: none"> <li>8. Prepare a report of findings with recommendations for corrective action.</li> </ul>	P F

<b>REFERENCES:</b>	<i>Required</i>	<i>Related</i>
	AR 420-47	None

081-850-0143

**INSPECT A SANITARY LANDFILL**

**CONDITIONS**

Necessary materials and equipment: a clipboard and an inspection form.

**STANDARDS**

Report all deficiencies with recommendations for corrective action.

**TRAINING EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                                                                                                                                 |   |   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| 1. Check adequacy of the site.                                                                                                                                                  | P | F |
| a. The site can be excavated to a minimum depth of 6 feet.                                                                                                                      |   |   |
| b. Ground and surface water is protected from contamination by surface and subsurface drainage.                                                                                 |   |   |
| c. The site is accessible to vehicles by all-weather roads.                                                                                                                     |   |   |
| 2. Check environmental impact.                                                                                                                                                  | P | F |
| a. The site has been selected in compliance with state and federal waste management laws, such as The Clean Water Act and The Endangered Species Act.                           |   |   |
| b. The site avoids underground streams and caverns.                                                                                                                             |   |   |
| c. Sites which are transversed by pipes or conduits for sewage and storm water have been rejected. These serve as pathways for leachate or gases that escape the landfill site. |   |   |
| d. The site is not located close to airports where attracted birds may pose a threat to aircraft.                                                                               |   |   |
| 3. Check for design considerations.                                                                                                                                             | P | F |
| a. Types and quantity of solid wastes.                                                                                                                                          |   |   |

<b>Performance Measures</b>	<b>Results</b>
<ul style="list-style-type: none"> <li>b. Current and projected use of near water sources.</li> <li>c. Nearby flood plain (100 year flood plain).</li> <li>d. Leachate control for water quality protection.</li> <li>e. Control of gaseous emissions, byproducts of aerobic/anaerobic decomposition of waste such as hydrogen sulfide, carbon dioxide, and methane.</li> </ul>	
4. Check leachate control.	P F
<ul style="list-style-type: none"> <li>a. The landfill bottom has liner material 5 feet or more above the seasonal high water table.</li> <li>b. Surface runoff has been diverted away from the landfill.</li> <li>c. A dike has been constructed around the landfill to prevent inundation.</li> <li>d. Incidental precipitation is channeled away from the landfill to prevent leachate.</li> </ul>	
5. Check for gas control (methane primarily).	P F
<ul style="list-style-type: none"> <li>a. Induced exhaust vents. These are vents equipped with perforated pipes. Some vents may be connected to a pump or blower by a common header pipe or some may use natural draft. Gases may flare or be recovered.</li> <li>b. Induced exhaust trenches. These are gravel packed trenches which vent with greater permeability than compacted waste and surrounding soil. Gas may not normally be recovered.</li> </ul>	
6. Check construction requirements.	P F
<ul style="list-style-type: none"> <li>a. The size should be one acre per year for each 10,000 individuals when the fill is to be 6 feet deep.</li> <li>b. Trenches/lifts should be 100 to 600 feet long. The width should be 8 to 10 feet for small installations and 10 to 15 feet for larger installations.</li> <li>c. A ramp is constructed on the windward side. It is 2 to 3 feet in height and the grade should not exceed 30 percent. The surface of the ramp should provide firm traction for vehicles.</li> </ul>	

**STP 8-91S15-SM-TG**

**Performance Measures**

**Results**

d. Bumper legs are placed along the trenches to prevent vehicles from backing into the trench.

7. Check the landfill operation.

P F

a. There is no salvage operation at the site.

b. Unloading is done one section at a time.

c. Waste is compacted after a few loads. The use of a bulldozer is the best method since the original waste volume may be reduced by two thirds.

d. At the end of the day, waste is covered with at least 6 inches of soil.

e. Refuse is sealed into a cell with 1 foot of well-compacted earth once a week. The trench should be sealed with a minimum of 2 feet of well-compacted earth. Finally the landfill will be covered with 24 inches of clay or other suitable material and 2 additional feet of soil will be placed over the finished or completed landfill to support vegetation.

8. Check for other special considerations.

P F

a. Blowing papers. To resolve this potential problem, the trucks are unloaded on the windward side. Portable fences may also be used to alleviate this problem, and rapid unloading is the best method to prevent it.

b. Cold weather operations. Advance excavation may be necessary during extreme cold weather. In addition, shelter will be required for the equipment.

9. Check the water monitoring system.

P F

a. A ground water monitoring system has been installed to monitor the wells, at least one hydraulically upgradient and two downgradient.

b. Samples from monitored wells are collected and analyzed prior to disposal of solid waste to obtain baseline data.

c. Samples are collected and analyzed once a year.

10. Check insect and rodent control.

P F

**REFERENCES:** None

**081-850-0151**

**COLLECT RODENTS**

**CONDITIONS**

Necessary equipment: collection equipment.

**STANDARDS**

Submit the rodents and accurate collection data to the requesting agency.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                                                                                                                                                                                                                                                                                                                                                                                        |        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 1. Check the equipment.                                                                                                                                                                                                                                                                                                                                                                                                                | P    F |
| 2. Determine the trap locations by visual or trapping survey and records of the locations.                                                                                                                                                                                                                                                                                                                                             | P    F |
| <ul style="list-style-type: none"> <li>a. During the visual survey of the location the technician should look for signs, such as droppings, rub marks, dust trails, and burrows or damage to stored materials.</li> <li>b. The trapping program will employ both live and snap-type traps. Using this method will allow gathering data concerning the population density, location of the infestation, and bait preference.</li> </ul> |        |
| 3. Conduct prebaiting, if required.                                                                                                                                                                                                                                                                                                                                                                                                    | P    F |
| 4. Set the traps.                                                                                                                                                                                                                                                                                                                                                                                                                      | P    F |
| <ul style="list-style-type: none"> <li>a. Place traps behind objects that are stacked close to the wall or behind a board leaned against a wall.</li> <li>b. Do not place traps in the same location for a week or longer periods. This will cause the rats to become "trap-wise" and no more rats may be caught, even though rats are in the area.</li> </ul>                                                                         |        |
| 5. Collect the rodents and reset or remove the traps.                                                                                                                                                                                                                                                                                                                                                                                  | P    F |
| <ul style="list-style-type: none"> <li>a. The first night of trapping usually produces the best results; therefore, it is essential to set a sufficient number of traps.</li> </ul>                                                                                                                                                                                                                                                    |        |

**STP 8-91S15-SM-TG**

**Performance Measures**

**Results**

b. A rat caught in each trap on the first night indicates that an insufficient number of traps were used.

c. Traps should be serviced daily and sometimes twice daily.

6. Record the trapping data.

P F

7. Process the rodents in accordance with the purpose of collection.

P F

8. Submit the rodents and collection data to the requesting agency or supporting laboratory.

P F

**REFERENCES:**

*Required*

*Related*

None

TM 5-662  
FM 8-250

081-850-0152

**COLLECT ARTHROPODS**

**CONDITIONS**

Necessary materials and equipment: appropriate collection equipment and materials for the specified arthropod to be collected.

**STANDARDS**

Submit the arthropods to the requesting agency in useable condition.

**TRAINING/EVALUATION**

*Training Information Outline*

1. Collect mosquito larvae.
  - a. Identify the exact areas where mosquitoes are breeding.
  - b. Establish regular larval dipping stations and inspect them periodically throughout the breeding season.
  - c. Identify and mark on a map all regular larval dipping stations. Larval stations may be barrels, small pools, ditches, drains, ponds, or almost any type of water collection.
  - d. Use a white enamel dipper to collect survey samples. Record the findings as the number of larvae per dip. Use large mouth pipets or siphons to collect samples from small areas such as tree holes.
  - e. Return sample specimens to a laboratory for identification.
2. Collect adult mosquitoes.
  - a. Light traps. The "New Jersey" light trap may be used in some installations. This trap is being replaced by the CDC or Army light trap. The Army light trap functions very similarly to the New Jersey light trap, but is collapsible.
    - (1) Carbon dioxide (dry ice) should be used in conjunction with the traps to attract mosquitoes.
    - (2) Ensure that the same type and size light bulb is used to obtain a standard index for seasonal or locality comparisons. Light traps should not be used to collect Anopheles and Aedes because these species are poorly, or not at all, attracted to light.

## STP 8-91S15-SM-TG

(3) Whenever possible, place traps 6 feet above the ground where they are sheltered from wind as much as possible and far away from artificial light sources. Ideal locations are between the installation and breeding areas.

(4) Traps should be operated 3 or 4 nights a week unless the main purpose is to detect uncommon species. In this case operate the traps every day.

(5) Traps should be operated from dusk to dawn.

b. Biting and landing rates.

(1) Use this method to determine the important pest species and estimate their relative abundance.

(2) Sample regular stations at intervals of 1 to 2 weeks and collect mosquitoes with an aspirator for a designated period of time (usually 10 to 15 minutes).

**NOTE:** This method may not be used in areas where disease transmission is known to exist unless the subject is adequately protected from the potential of becoming infected.

c. Resting stations.

(1) Adults of many species are inactive during the day. They are easily found resting quietly in cool, dark, and damp places.

(2) Use a vial aspirator to make collections in houses, stables, sheds, culverts, and similar shelter.

d. Animal bait stations.

(1) These are excellent devices for collecting mosquitoes during disease outbreaks or for long term research.

(2) This station should be constructed so the mosquitoes can enter through an opening on each side. These openings should be somewhat funnel shaped with a much smaller opening on the interior of the trap. This allows the mosquitoes to easily enter the bait stations, but escape with difficulty. The trap must have an opening large enough for an individual to enter, close the door, and then collect resting adult mosquitoes.

3. Collect flies.

a. Stable or dog flies may be collected by using a sweep net or in an ethyl acetate tube while biting.

b. Horseflies and deerflies may be collected using the biting collection method, sweep nets, and light traps.

c. Blackfly larvae may be collected from the stones and plants they are attached to in running streams. Adults may be taken in nets as they swarm to feed or may be collected with an ethyl acetate tube while feeding.

d. Sand flies may be collected using the aspirator, sticky paper, and the CDC traps methods.

e. Tsetse flies may be collected by using sweep nets and ox-odor baited traps.

f. Houseflies and blowflies may be collected by using a fly trap. This fly trap is in essence a screen cage with a funnel-type entrance. To use it, simply place it over a bait selected to attract several species of domestic flies.

#### 4. Collect mites.

a. To collect chigger mites, use several 8- to 12-inch plastic discs painted black or white and place them on the ground for 1 to 5 minutes. Locate the plates about 100 feet apart and use enough to generally cover the area being surveyed.

b. Collect the mites in vials of alcohol using a fine pointed brush for later identification by a supporting laboratory.

c. Use Berlese funnels to collect flour and grain mites and other free-ranging species such as bird mites in nesting material.

d. Stunning or killing animal ectoparasites (with ether or chloroform) on dead or trapped animals, and combing (or beating) the parasites from the animal into a white enamel pan is another very useful method.

e. Pick the mites off with fine forceps, particularly in the case of chiggers that have fastened to an animal.

f. Place live host animals in cages that have wire or hardware cloth bottoms so that any mites that drop off after engorging will fall into a pan of water put under the cage.

g. Place a dead host animal in a glass jar containing water and a detergent. Shake the jar thoroughly to separate ectoparasites from the animal. Pour the liquid into a funnel containing filter paper. Any mites will be strained out on the paper.

#### 5. Collect ticks.

a. A tick drag is the most widely used collection device. This is a piece of white flannel about 4 feet square attached to two wooden dowels. A 4 to 5 foot length of rope is attached to each end of the dowel.

b. The second method also involves the use of a 4 foot flannel square. To use this technique, place the cloth on the ground. In the center, place a person, cage animal, or dry ice. After a preset time, normally 5 to 10 minutes, take up the panel and count the number of ticks present.

## STP 8-91S15-SM-TG

c. After making a count with either method, collect specimens in alcohol for shipment to a supporting laboratory for identification.

### 6. Collect fleas.

a. Focus survey methods on sampling the rodent population and other small animals to learn the relative abundance of fleas in the area, or measuring flea numbers on rodents (or other small animals) to determine the prevalent species.

b. To do this, first trap rodents or other target hosts at numerous points in the survey area using either snap or live traps.

c. If snap traps are used, it is essential to observe them fairly frequently (at least within 8 hours of setting). Immediately place any catches in individual bags to keep fleas and other ectoparasites from escaping. Wear protective clothing to prevent personal attacks from escaping ectoparasites.

d. If live traps are used, return them to a processing area where the animals can be anesthetized. Collect specimens by combing the animals with a fine-toothed comb over a large white enameled pan. The pan should contain a small quantity of alcohol.

### 7. Collect ants.

a. Harvester ants and other species may be collected by burying wide-mouth jars near the nest. Baits are not required, but they will speed up getting trapped ants.

b. Another easy method is to pick up ants by rolling a small brush, such as an artist's watercolor brush, over the backs of foraging ants running on well-defined runs. Dip the brush in alcohol or other preservative before rolling it over the ants.

c. To collect eggs, larvae, pupae, or reproductives, digging into the nest to expose the ants is normally required. Protective clothing must be worn to evacuate large nests, such as those for fire ants.

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>
1. Prepare the equipment and materials for the specified arthropods to be collected.	P F
2. Locate the arthropods.	P F
3. Collect the specified arthropods.	P F
4. Record the collection data.	P F
5. Process the specimens.	P F
<b>NOTE:</b> Processing must be appropriate to the purpose of collection.	
6. Submit the specimens and collection data to the requesting agency.	P F

**REFERENCES:**

*Required*

None

*Related*

TM 5-632  
FM 8-250

**PROCESS ENTOMOLOGICAL SPECIMENS FOR STORAGE**

**CONDITIONS**

Necessary materials and equipment: appropriate mounting or preservative materials and storage containers for the specimens.

**STANDARDS**

Correctly process the specimens for storage.

**TRAINING/EVALUATION**

*Training Information Outline*

1. Preserve specimens using the pinning methods.
  - a. Minuten pin or paper point mounting.

**NOTES:** 1. This method is used to mount adult mosquitoes. The specimens must be either freshly killed or relaxed so that the appendages will not break when handled.

2. The safest orientation of the specimen is in a horizontal position with the legs directed toward the pin.

(1) If a paper point is used, attach the left side of the thorax with adhesive to the upper side of the paper point so that the right side of the specimen can be examined from above.

(2) Minuten pin.

(a) Place the minuten pin in a minuten cork that is pinned by a No. 3 insect pin.

(b) Pierce the adult mosquito between the legs with the minuten pin, extending it close to but not through the thoracic dorsum.

(c) Place the adult mosquito on the left side of the No. 3 pin with the right lateral side viewed from above.

- b. Mounting on regular insect pins (sizes 1 to 3).

**NOTE:** Large species that can be pinned directly by insect pins are houseflies, blister beetles, and coned nose bugs.

- (1) Hold a relaxed specimen with your thumb and forefinger, and stick an insect pin through the appropriate area on the specimen to a desired height, usually about 1/4 inch from the top of the pin.
- (2) Use a pinning block to ensure that specimens and associated labels are on the same level on each pin.
  - (a) Stick the pin with the specimen through a piece of balsam wood or cardboard.
  - (b) Arrange the legs and antennae in a natural, well-positioned manner to diminish breakage and to aid in accurate identification.
  - (c) Dry the specimens at room temperature for several days.
  - (d) Add labels and store the specimens indefinitely in a dark, dry, container with moth crystals or paradichlorobenzene flakes in one corner to control dermestid beetles.

2. Preserve specimens on a slide mounting.

**NOTE:** Arthropods such as fleas, mites, and lice are mounted on glass slides.

- a. Before mounting a specimen, the slide should be cleaned.
- b. Mounts of these specimens require additional preparation in order to obtain the best results.
  - (1) Body fluids, nonchitinous tissues, and digestive tract contents are often removed. This can be accomplished by mechanical or chemical means. A puncture of the membrane area of the specimen can be made with a needle, and the body fluids and contents can be pumped out.
  - (2) Specimens may also be placed in caustic solutions, such as potassium hydroxide (5 to 10%) which is used as a chemical clearing agent.
    - (a) Leave the specimens in this liquid 1 to 48 hours, depending on the darkness of the specimens. If you leave them in this solution for too long, overclearing results in identifying structures becoming invisible.
    - (b) After clearing, wash the specimens in distilled water for about 15 minutes.
  - (3) When using a water soluble mounting medium (Berlese or Methocellulose), you can mount the specimens after the water rinse. If a nonwater soluble medium (Balsam or Euparal) is used, put the specimens in 70 percent ethyl alcohol for 3 hours. Then place them in absolute alcohol for another 3 hours.

**NOTE:** Specimens should always be handled with care, using a camel's hair brush or fine forceps. The alcohol removes water from the arthropods.

## STP 8-91S15-SM-TG

(4) Finally, put the specimens in a final clearing agent such as xylene, cellosolve, or clove oil for 30 minutes.

**NOTE:** Proper orientation of the specimen is necessary for easy examination of desired morphological structures. For example, a partial incision between the 7th and 8th abdominal segments of a culicine larva aids in the vision of the anal segment characteristics. The dorsal side of the mosquito larva should be viewed from above. Fleas are mounted with the head pointed to the right and legs pointed to the upper edge of the side.

- c. Place the specimen in the desired position on a slide in a small drop of Canada balsam.
- d. Allow it to dry overnight at room temperature or in an incubator at 37° C.
- e. After this initial drying which stabilizes the specimen, add additional Canada balsam and place a coverslip over the specimen.

**NOTE:** It is often desirable to add bits of coverslip glass in the corner of the balsam to support the specimen.

- f. Write the appropriate data on the slide labels.
- g. Dry the slide in a horizontal position for several weeks at room temperature or in an incubator at 37° C.

3. Preserve specimens in alcohol.

**NOTES:** 1. Many arthropod specimens can be killed, preserved, and stored in ethyl alcohol. These specimens frequently include fleas, lice, bedbugs, mites, ticks, and mosquito larvae.

2. The concentration of alcohol usually used is 70 to 75 percent, but often a higher concentration is needed for specimens with large amounts of body fluids, such as spiders.

- a. Place the specimens in glass vials or jars filled with alcohol.
- b. Add a few drops of glycerine to prevent damage to the specimen if the alcohol evaporates.
- c. For permanent storage, fill the specimen vials or jars with alcohol, plug them with a bit of cotton at the open end, and invert them into a large jar. Place a layer of cotton on the bottom of the jar, and then fill the jar with alcohol. Ensure that the top is well secured.

4. Label the specimens.

a. Without adequate data, a specimen is practically worthless. The basic information needed includes the general locality, specific host or habitat, date, and name of the collector. Other information, such as the time of collection, elevation, and weather conditions, may also be added. If the specimen is mounted on a slide, the name of the medium is also included on the label.

- b. For specimens on points or pins, the hard paper labels should not exceed 2/8 by 3/4 inch in size.
- c. Labels are available which will fit neatly on a standard microscope slide.
- d. Waterproof black ink is commonly used in printing labels; however, a hard pencil is satisfactory for temporary labels.
- e. For specimens in alcohol, the label should be placed inside the vial. For information on pinned specimens, the locality label should be stuck on the pin underneath the arthropod. After identification, another label with the determination and name of the individual who identified the specimen is placed under the first label.

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                     |   |   |
|-----------------------------------------------------|---|---|
| 1. Preserve specimens using the appropriate method. | P | F |
| 2. Label the specimens.                             | P | F |

**REFERENCES:** None

081-850-0154

**PROCESS ENTOMOLOGICAL SPECIMENS FOR SHIPMENT**

**CONDITIONS**

You have specimens which have been properly processed and preserved. Necessary materials and equipment: appropriate packing materials and shipping containers for the specimens.

**STANDARDS**

Correctly process the specimens and ship them to the requesting agency.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

1. Pack the specimens in shipping container(s).

P F

a. Schmitt box. This container is used to ship pin mounted specimens.

(1) Firmly insert the pinned specimens in the bottom of the box using pinning forceps or needle nosed pliers.

(2) Pin the specimens far enough apart to prevent the arthropods from becoming damaged during shipment.

(3) Tape an inventory of the box contents inside the top left corner of the box lid.

(4) Close the box and secure it with tape.

(5) To ensure that the specimens arrive in good condition, pack the box in a large, well-padded cardboard box.

**NOTE:** If schmitt boxes are not available, cigar boxes may be used in the manner described above.

**Performance Measures****Results**

b. Tube mailers. These containers are used to ship permanent alcohol mounts and individual pinned specimens.

**NOTE:** Temporary mounts must be converted to permanent mounts before they can be mailed.

- (1) Select the appropriate tube size.
- (2) Pad the inner tube with gauze or cotton.
- (3) Invert the mount into the tube and cap it.
- (4) Once the inner tube is capped, invert it into a large cardboard tube and cap it.

c. Slide mailers. These are slotted cardboard containers designed specifically for slides.

- (1) Wrap each slide in tissue paper.
- (2) Insert them individually into the slide mailer slots.
- (3) Tape the mailer shut, address it, and name the specimen on the opposite side of the mailer.
- (4) If three slide mailers are being shipped, place them in a franked envelope and mail it.
- (5) If more than three slide mailers are being shipped, place them in a well-padded box. Include an inventory of the specimens.

d. Shipping unmounted specimens. When necessary, use the pill box.

- (1) Begin with the smallest of three nesting boxes and line it with cotton or gauze and a layer of tissue.
- (2) Place the specimens on the tissue and cover them with another tissue layer.

**NOTE:** Never put specimens directly on the cotton or gauze padding as it may damage some of the most delicate specimens.

- (3) When the first box is packed, tape it shut. Add the address and inventory.

**STP 8-91S15-SM-TG**

**Performance Measures**

**Results**

(4) Place the box in a second box which is also taped, addressed, and enclosed in a third box.

(5) When the third box is properly addressed, it may be packed in a large, well-padded cardboard box. An inventory of the contents should accompany the large box.

2. Ship the specimens to the requesting agency.

P F

**REFERENCES:** None

081-850-0156

**CONDUCT PEST CONTROL OPERATIONS WITH PESTICIDES**

**CONDITIONS**

Necessary materials and equipment: pest control equipment, personal protective equipment, TM 5-632, DD Form 1532, and a pesticide for the target pest.

**STANDARDS**

Reduce the target pest population to an acceptable level without endangering yourself and other humans.

**TRAINING/EVALUATION**

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>
1. Select the pesticide and dosage.	P F
<b>NOTE:</b> Ensure the pesticide is used in accordance with the label.	
2. Calculate the amount of pesticide and diluent needed.	P F
3. Select the equipment, materials, and manpower based upon the type of pest control operation, size of the area to be covered, location, and weather conditions.	P F
4. Calibrate the equipment.	P F
5. Mix the pesticide.	P F
6. Apply the pesticide.	P F
<b>NOTE:</b> Ensure that personal protective equipment is used by all personnel conducting pest control operations.	
7. Dispose of unused pesticide and related material.	P F
8. Clean the equipment.	P F
9. Record the control operation data.	P F

**STP 8-91S15-SM-TG**

**REFERENCES:**

*Required*

TM 5-632

*Related*

FM 8-250

081-850-0161

MEASURE SOUND LEVEL

CONDITIONS

Necessary materials and equipment: a sound level meter, a sound level calibrator, a jeweler's screwdriver, a clipboard, hearing protective devices, and DD Form 2214.

STANDARDS

Correctly measure the sound level and record the information on DD Form 2214.

TRAINING/EVALUATION

*Evaluation Guide*

Performance Measures

Results

1. Check the equipment. Ensure that the calibrator and sound level meter are undamaged, and both are equipped with fully charged batteries. P F

2. Calibrate the sound level meter. P F

**NOTE:** Use only the acoustical calibrator recommended by the sound level meter manufacturer.

a. Verify calibration, to within plus or minus 1 dB, before and after taking the measurements. Perform the calibration with the meter switched to the C weighing scale.

b. Ensure that the calibrator and the sound level meter have received an annual comprehensive calibration.

3. Locate the sampling point. P F

4. Record the sampling point data on DD Form 2214. P F

5. Adjust the meter to the appropriate scale. Before taking the reading, set the meter to the A weighing scale, and note the slow response. P F

6. Take the meter reading. P F

7. Record the reading on DD Form 2214. P F

**STP 8-91S15-SM-TG**

**REFERENCES:**

*Required*

None

*Related*

DA Pam 40-501  
FM 8-250

081-850-0162

DETERMINE A WBGT INDEX

CONDITIONS

Necessary materials and equipment: WBGT apparatus, distilled water, and TB Med 507.

STANDARDS

Correctly compute the WBGT index and report it with appropriate recommendations.

TRAINING/EVALUATION

*Evaluation Guide*

Performance Measures

Results

- |                                                                                                                                                                       |        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 1. Check the apparatus.                                                                                                                                               | P    F |
| a. Wet bulb thermometer.                                                                                                                                              |        |
| b. Black globe thermometer.                                                                                                                                           |        |
| c. Dry bulb thermometer.                                                                                                                                              |        |
| 2. Take the readings.                                                                                                                                                 | P    F |
| 3. Compute the WBGT index. The index may be computed by using the slide ruler of the WBGT kit or by multiplying each individual thermometer reading by the following: | P    F |
| 0.7 for the wet bulb temperature                                                                                                                                      |        |
| 0.2 for the black globe temperature                                                                                                                                   |        |
| 0.1 for the dry bulb temperature                                                                                                                                      |        |
| Add the three products to get the WBGT index.                                                                                                                         |        |
| 4. Interpret the index. (See Figure 3-1.)                                                                                                                             | P    F |
| 5. Report the WBGT index with recommendations.                                                                                                                        | P    F |

HEAT CATEGORY	WBGT INDEX	CONTROLS
1	78-81.9	Use discretion in planning heavy exercise.
2	82-84.9	(See category 1.)
3	85-87.9	Suspend strenuous exercise during the first 3 weeks of training. Training activities may be continued on a reduced scale after the second week of training.
4	88-89.9	Curtail strenuous exercise for all personnel with less than 12 weeks of hot weather training.
5	90 and up	Physical training and strenuous exercise are suspended. Essential operational commitments not for training, where risk of heat casualties may be warranted, are excluded from suspension. Enforce water intake to minimize expected heat injuries.

Figure 3-1

REFERENCES:

*Required*

*Related*

TB Med 507

None

081-850-0163

**DETERMINE THE WIND CHILL FACTOR**

**CONDITIONS**

Necessary materials and equipment: a wind speed gauge or the phone number of the nearest agency with instrumentation for wind speed measurement, a thermometer, a wind chill factor chart, and TB Med 81.

**STANDARDS**

Correctly determine the wind chill factor and report it with the appropriate danger potential.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                                |   |   |
|--------------------------------------------------------------------------------|---|---|
| 1. Measure or obtain the wind speed.                                           | P | F |
| 2. Check the temperature.                                                      | P | F |
| 3. Locate the equivalent temperature on the windchill chart. (See Figure 3-2.) | P | F |
| 4. Report the windchill factor and the danger potential.                       | P | F |

**REFERENCES:**

*Required*

*Related*

TB Med 81

FM 21-10

Estimated Wind Speed (in mph)	Actual Temperature Reading (°F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Chill Temperature (°F)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds greater than 40 mph have little additional effect.)	LITTLE DANGER in less than one hour with dry skin. Maximum danger of false sense of security.			INCREASING DANGER Danger from freezing of exposed flesh within one minute.				GREAT DANGER Flesh may freeze within 30 seconds.				
	NOTE: 1. Trench foot and immersion foot may occur at any point on this chart. 2. $F = 9/5 C + 32$ .											

Figure 3-2

081-850-0164

**INSPECT A BARBER/BEAUTY SHOP**

**CONDITIONS**

Necessary materials and equipment: a clipboard, AR 40-5, and DA Form 5402-R or paper.

**STANDARDS**

Report all deficiencies with recommendations for corrective action.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <p>1. Check the employees' hygienic practices.</p> <p style="padding-left: 40px;">a. Barbers and beauticians will not work when ill with a communicable disease or other condition which may be transferred to a patron.</p> <p style="padding-left: 40px;">b. Barbers and beauticians keep their person and clothing clean. Smocks and/or uniforms are changed daily.</p> <p style="padding-left: 40px;">c. Barber and beauticians are prohibited from smoking, eating, and drinking in the work areas, such as in back bar areas, styling stations, and shampoo and drying areas. An area should be designated for this purpose only.</p> | <p>P F</p> |
| <p>2. Check the employees' health certificates.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>P F</p> |
| <p><b>NOTE:</b> The IMA will determine and state in a written policy if pre-employment medical evaluations to ensure freedom from communicable disease, examination before returning to work after illness, and special examinations are required.</p>                                                                                                                                                                                                                                                                                                                                                                                      |            |
| <p>3. Check the shop location. The shop is not located in a food service or sleeping area.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>P F</p> |
| <p>4. Check the water supply. An adequate supply of hot and cold running water, proper plumbing fixtures, and adequate waste disposal are provided.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>P F</p> |
| <p>5. Check the number of sinks. At fixed installations, a minimum of one lavatory will be provided for each two chairs.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>P F</p> |
| <p>6. Check the adequacy of lighting.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>P F</p> |

## STP 8-91S15-SM-TG

<b>Performance Measures</b>	<b>Results</b>	
7. Check the adequacy of ventilation.	P	F
8. Check the hair removal procedures. Cut hair will be removed frequently from the floor.	P	F
9. Check the procedures for headrest use. Barber chair headrests are covered with a clean sheet of paper or clean towel for each patron.	P	F
10. Check the neck covers. Fresh laundered towels or individual disposable sanitary neck strips are used for each patron.	P	F
11. Check the haircloth. Reusable hair cloths are changed daily.	P	F
12. Check for prohibited items such as common brushes, neck dusters, shaving brushes, sponges, and powder puffs.	P	F
13. Check the sanitary receptacles. Closed sanitary receptacles are provided for waste materials and soiled linens.	P	F
14. Check the soiled linen containers/closet.	P	F
15. Check the procedure for screening patrons.  a. Without written consent of a medical officer, patrons will not be served in barber or beauty shops when their face, neck, or scalp is inflamed, contains pus, or has erupted boils or pimples.  b. Lice infested personnel will not be served and will be referred immediately for medical treatment.	P	F
16. Check for prohibited therapeutic practices, such as treating blackheads, infected hair, sores, or lesions; pulling of hairs from ears, nostrils, eyebrows, and mustaches; and the use of lump alum or styptic pencils.	P	F
17. Check that the materials used to control blood flow are in powder or liquid form and are applied with a freshly laundered towel or sterile absorbent cotton.	P	F
18. Check the procedure for cleaning and disinfecting instruments.  a. Instruments are cleaned immediately after use on each patron. Scissors, combs, and tools are thoroughly washed with soap and hot water to remove all film, oil, and debris, and then dried with a clean towel or clean disposable tissue.	P	F

**Performance Measures**

**Results**

b. At the close of each day's operation, all used barbering tools are washed, disinfected in a chemical solution, and rinsed in running water to remove the chemical before reuse.

19. Check for the availability of the appendix of AR 40-5 governing barber and beauty shop operations.

P F

20. Prepare a checklist and/or report of findings with recommendations for corrective action.

P F

**REFERENCES:**

*Required*

*Related*

AR 40-5

AR 40-3

**081-850-0165**

**INSPECT TROOP HOUSING**

**CONDITIONS**

Necessary materials and equipment: a tape measure, a light meter, a ventilation meter, a flashlight, a clipboard, and an inspection form or paper.

**STANDARDS**

Report all deficiencies with recommendations for corrective action.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                     |   |   |
|---------------------------------------------------------------------|---|---|
| 1. Check the floor space.                                           | P | F |
| a. Surgeon General's space allowances.                              |   |   |
| (1) 72 sq ft per man - comfortable.                                 |   |   |
| (2) 55 sq ft per man - medically safe.                              |   |   |
| (3) Below 55 sq ft per man - medical risk.                          |   |   |
| (4) 72 sq ft per man - basic trainees.                              |   |   |
| b. Billeting operations space allowances IAW AR 210-50.             |   |   |
| (1) E1 and trainees: 72 sq ft, open bay, central latrine.           |   |   |
| (2) E2 - E4: 85 sq ft, three to a room, one bath per sleeping room. |   |   |
| (3) E5 - E6: 90 sq ft, two to a room, one bath per sleeping room.   |   |   |
| (4) E7 - E9: 200 sq ft, private room, private bath included.        |   |   |
| c. Mobilization space allowances. 40 sq ft per man.                 |   |   |

**Performance Measures**

**Results**

- d. Sleeping space does not include:
  - (1) Administration offices.
  - (2) Storage space.
  - (3) Circulation space (stairways and hallways).
  - (4) Boiler and heater rooms.
  - (5) Dayroom.
  - (6) Latrine facilities.
- e. Wall and foot lockers are included in the sleeping area.
- 2. Check the personal hygiene and waste disposal. P    F
  - a. Toilet ratios.
    - (1) Females 1:6.
    - (2) Males 1:10.
  - b. Lavatory ratios.
    - (1) Females 1:6.
    - (2) Males 1:8.
  - c. Shower ratios.
    - (1) Females 1:10.
    - (2) Males 1:16.
  - d. Urinals ratio. Males 1:16.
  - e. Bathtubs ratio. Females 1:30.
- 3. Check the sanitation of the building. P    F

**STP 8-91S15-SM-TG**

**Performance Measures**

**Results**

- |                                                                                                                                                          |   |   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| 4. Check the adequacy of lighting.                                                                                                                       | P | F |
| a. Natural light. Sunlight through windows must cover 20 percent of the floor surface.                                                                   |   |   |
| b. Artificial light.                                                                                                                                     |   |   |
| (1) Dayroom - 30 foot candles.                                                                                                                           |   |   |
| (2) Squad rooms and NCO rooms - 10 foot candles.                                                                                                         |   |   |
| (3) Aisles, corridors, and halls - 10 foot candles.                                                                                                      |   |   |
| (4) Latrine - 10 foot candles.                                                                                                                           |   |   |
| 5. Check the adequacy of ventilation and heating. The minimum outside air supply required during heating season is 600 to 900 cubic ft per hour per man. | P | F |
| 6. Check the bed arrangements.                                                                                                                           | P | F |
| 7. Check for the presence of insect and rodent infestations.                                                                                             | P | F |
| 8. Prepare a checklist and/or report of findings with recommendations for corrective action.                                                             | P | F |

**REFERENCES:**

*Required*

*Related*

None

AR 40-5  
AR 210-50  
TM 5-810-5  
DOD 4270.1-M  
TM 5-810-1

081-850-0166

## INSPECT FIELD HYGIENE FACILITIES

### CONDITIONS

Necessary materials and equipment: a clipboard and an inspection form or paper.

### STANDARDS

Report all deficiencies with recommendations for corrective action.

### TRAINING EVALUATION

#### *Training Information Outline*

1. Check the number of facilities required.
  - a. Latrine facilities. Four percent of the male population within the command are provided with latrines. Urine disposal facilities are collocated with the latrines to prevent soiling of the toilet seats. Six percent of the female population within the command are provided with latrines.
  - b. Chemical latrines. The requirement will be established by the surgeon or other medical authority in the area of operation.
  - c. Garbage pits. There is one pit per 100 soldiers served per day.
2. Check human waste disposal facilities.
  - a. Latrines.
    - (1) Cat-hole - used during short halts when troops are on a march.
    - (2) Straddle trench latrines - used in temporary bivouac (1 to 3 days) unless more permanent facilities are provided.
    - (3) Deep pit latrines - used in temporary camp (more than 3 days). Mound and bored-hole latrines may be used also.
    - (4) Pail latrines - used in areas where conditions (populated areas, rocky soil, marshes) are such that a latrine of another type cannot be constructed. Waste is disposed of by burning or burial.
    - (5) Burn-out latrines - used when soil is hard, rocky, or frozen making it difficult to dig a pit. The burn-out latrine is not used when regulations prohibit open fires or air pollution.

## STP 8-91S15-SM-TG

(6) Chemical latrines - used when federal, state, or local laws prohibit the use of other field latrines.

**NOTE:** All latrines should be provided with handwashing facilities.

### b. Urinals.

(1) Pipe urinals - soakage pits dug 4 feet square and 4 feet deep, filled with rocks or other coarse material. Pipes (at least 1 inch in diameter) are placed at each corner of the pit, and, if needed, on the sides halfway between the corners. Pipes are provided with a funnel of tar paper, sheet metal, or similar material. Funnels are covered with screen wire to keep flies out.

(2) Trough urinals - made of sheet metal or wood with either V- or U-shaped ends. They are about 10 feet long, made of wood, and lined with tar paper or metal. The legs supporting these urinals are cut slightly shorter on one end where a pipe carries the urine into the soakage pit or latrine pit.

(3) Urinoil - a 55 gallon drum designed to receive and trap urine and to dispose of it into a soakage pit. Urine voided through the screen onto the surface of the oil immediately sinks through the oil to the bottom of the drum. This device may be used in areas where the ground water level is more than 3 feet below the surface.

### 3. Check garbage disposal facilities.

a. Burial. The area is at least 100 feet from any natural source of water, such as a stream or well, used for cooking or drinking. The garbage burial area should be a reasonable distance from the kitchen to minimize problems with flies, odor, and appearance. On the march, in bivouac, or in camps of less than 1 week duration, the kitchen wastes are disposed of by burial in pits or trenches.

(1) Pits are preferred for overnight halts. These are usually dug 4 feet square and 4 feet deep. The pit is filled to not more than 1 foot from the top. In closing the pit, it is first sprayed with residual insecticide. The pit is then filled to ground level with successive 3-inch layers of earth and is mounded over with at least 1 foot of compacted earth. Spray again with residual insecticide and post a sign stating, "Closed garbage pit" and the date closed. (Do not post a sign in combat.)

(2) Continuous trenches are more adapted to stays of 2 days or more. The trench should be dug about 2 feet wide and 4 feet deep. It should be long enough to accommodate the garbage. The trench is extended as required, and excavated dirt is used to cover and mound the first deposits.

b. Incineration is used for temporary camps of 1 week or more. Wet garbage must be separated because this unit will not handle wet garbage. Since field incinerators create an odor nuisance, they should be located at least 50 yards downwind from the camp.

(1) Cross trench and stack incinerator - dry trash incinerator capable of handling all the waste produced by a company-size unit.

(2) Inclined plane incinerator - capable of disposing of the garbage of an entire battalion, evacuation hospital, or other unit of similar size.

**NOTE:** Combustible rubbish is burned when the tactical situation permits. Other rubbish is either buried or hauled to a suitable disposal site, depending on the tactical situation.

4. Check the liquid waste disposal facilities.

a. Soakage pits. Two pits are needed for a company size unit, so that one can have a rest period every other day. The pits, 4 feet square and 4 feet deep, must be equipped with grease traps to prevent them from becoming clogged.

b. Soakage trenches. These are used when the ground water level is high or rock stratum is encountered. Trenches are extended outward from each corner of the central pit dug 2 feet square and 1 foot deep. Trenches are dug 1 foot wide and 6 or more feet long. Two such units should be built for every 200 persons fed, and each unit should be used on alternate days. A grease trap must be used to prevent clogging of the trenches.

c. Grease traps. All kitchen liquids are passed through a grease trap to remove food particles and as much grease as possible to prevent soakage pits and trenches from becoming clogged.

(1) Filter grease trap. An oil drum with the top removed and the bottom perforated is filled 2/3 full with crushed rocks or gravel followed by smaller gravel and then 6 inches of sand, ashes, or straw at the top. The top of the drum is covered with burlap or other fabric to strain the liquid waste.

(2) Baffle grease trap. This is the most effective way of removing grease. It is a watertight container divided into entrance and exit chambers. This unit is usually placed on the ground at the side of a soakage pit with the outlet pipe extending 1 foot beneath the surface of the center of the pit. Before the grease trap is used, the chambers are filled with cool water. When the warm liquid strikes the cool water in the entrance chamber, the grease rises to the surface and is prevented by the baffle from reaching the outlet to the soakage pit. Grease should be skimmed from the surface daily, or as frequently as necessary, and buried.

d. Bath and wash water. This water is disposed of in the same manner as liquid kitchen waste.

5. Check waste facilities closing procedures.

a. When a latrine has been filled to within 1 foot of the surface, or when it is to be abandoned, it must be closed. The contents of the pit, the side walls, and the ground surface to a distance of 2 feet from the side walls are sprayed with an approved insecticide.

b. The pit is then filled to ground level with successive 3-inch layers of earth. Each layer is packed down and its surface is sprayed with insecticide before the next layer is added.

**STP 8-91S15-SM-TG**

c. The latrine pit is mounded over with at least 1 foot of compacted earth to prevent the emergence of flies that may hatch in the closed latrine.

d. The location of the latrine should be plainly marked with a CLOSED LATRINE sign and dated, provided the tactical situation permits.

6. Check insect and rodent control.

7. Prepare a report of findings with recommendations for corrective action.

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Check the number of facilities required.	P	F
2. Check human waste disposal facilities.	P	F
3. Check garbage disposal facilities.	P	F
4. Check the liquid waste disposal facilities.	P	F
5. Check the waste facilities closing procedures.	P	F
6. Check insect and rodent control.	P	F
7. Prepare a report of findings with recommendations for corrective action.	P	F

**REFERENCES:**

*Required*

None

*Related*

FM 21-10  
FM 21-10-1  
FM 8-250

081-850-0167

**EVALUATE A FIELD SANITATION TEAM**

**CONDITIONS**

Necessary materials and equipment: a clipboard, FM 21-10, FM 21-10-1, and an inspection form or paper.

**STANDARDS**

Report all deficiencies with recommendations for corrective action.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

1. Check the team personnel requirements and training.

P F

a. Composition.

(1) Company aidmen (MOS 91B) attached or organic to deployed units will function as the field sanitation team if available.

(2) If medical personnel are not available, two soldiers have been selected and trained, one of whom is an NCO.

(3) Each soldier has at least 6 months remaining with the unit on the date of appointment.

b. Training.

(1) Members of the field sanitation team have received training from supporting medical resources before deployment or field exercises to ensure that small units have the PVNTMED resources to operate in adverse disease and/or climate environments.

(2) Instructions address use, maintenance, and care of the field sanitation equipment as well as communicable disease control, food service sanitation, water supply, waste disposal, and arthropod and rodent control.

**STP 8-91S15-SM-TG**

**Performance Measures**

**Results**

2. Check the unit's field sanitation training program.

P F

a. The field sanitation team will conduct training within the unit on individual preventive medicine measures against disease or injury as these relate to an assessment of the medical threat in the prospective or defined areas of operation.

b. All information regarding preventive medicine measures should be incorporated into the unit SOP.

3. Check the equipment and supplies. The following field sanitation equipment and supplies are available at all times:

P F

<b>Description</b>	<b>NSN</b>	<b>Allowance</b>	<b>Unit/Issue</b>
Calcium hypochlorite, 6 oz	6810-00-255-0471	3	BT
Chest, N0 3, 30X18X10, Alum	6545-00-914-3840	1	EA
Chlorination kit, water purification	6850-00-270-6225	10	KT
Disinfectant, food service	6840-00-810-6396	2	BX
Duster, manually operated, tubular pump	3740-00-142-5936	1	EA
Glove, chemical and oil protective	8415-01-012-9294	1	PR
Goggles, industrial, non-vented	4240-00-190-6432	1	PR
Insect repellent, personnel application, 2 oz	6840-01-284-3982	384	BT
Insecticides, chlorpyrifos, 42%, 40 ml, 12's	6840-01-210-3392	1	BX
Insecticides, d-Phenothrin, 2%, 12 oz	6840-01-067-6674	144	CN
Mousetrap, spring, 12's	3740-00-252-3384	2	DZ
Ratrap, spring, 12's	3740-00-260-1398	2	DZ
Repair parts kit, sprayer	3740-01-234-3448	1	EA
Rodenticides, anticoagulant bait, 5 lb	6840-00-753-4973	2	CN
Sprayer, insecticides, hand, 2 gal	3740-00-641-4719	1	EA

<b>Performance Measures</b>				<b>Results</b>	
<b>Description</b>	<b>NSN</b>	<b>Allowance</b>	<b>Unit/Issue</b>		
Swatter, fly, 12's	3740-00252-3383	1	PG		
Water purification tablet, iodine, 50's	6850-00-985-7166	400	BT		
4. Check the disinfection of water in the unit area.				P	F
5. Check for deficiencies in food service sanitation.				P	F
6. Check the construction of garbage and soakage pits.				P	F
7. Check the construction of field latrines and urinals.				P	F
8. Check personnel hygiene practices and facilities.				P	F
9. Check arthropod and rodent control.				P	F
10. Check personal protective measures.				P	F
11. Prepare a checklist and/or report of findings with recommendations for corrective action.				P	F

**REFERENCES:**

***Required***

***Related***

FM 21-10-1  
FM 21-10

AR 40-5

**SECTION II  
SKILL LEVEL 2 TASKS**

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**081-850-0271**

**INSPECT ICE MANUFACTURING, STORAGE, AND DISTRIBUTION FACILITIES**

**CONDITIONS**

Necessary materials and equipment: a color comparator, a light meter, a flashlight, 40 CFR 265 App III, MIL-STD-906, a clipboard, and an inspection form or paper.

**STANDARDS**

Report all deficiencies with recommendations for corrective action.

**TRAINING/EVALUATION**

*Training Information Outline*

1. Check the general sanitation of the premises.
  - a. The premises present a clean and orderly appearance and they are well drained. The area is free of weeds, debris, and unused equipment and materials. The approaches to receiving and shipping docks are kept clean and maintained to minimize dust.
  - b. The area is free of waste materials that are stored or handled in such a manner as to be a potential health hazard.
  - c. The presence of any breeding area for insects, rodents, or birds is not permitted.
2. Check the raw materials. Ice which shows evidence of adulteration, contamination, or any condition that, from a public health or aesthetic standpoint, renders the product unfit for human consumption is not accepted by the plant.
3. Check the construction of the building.
  - a. The building is large enough to accommodate the operation without hampering sanitary practices. Floors, walls, and ceilings are constructed of materials that can readily be kept clean, sanitary, and in good repair.
  - b. There is no unnecessary clutter of wiring, pipes, hangers, and ducts. Pipe openings and vents through walls are sealed or otherwise protected to prohibit the entrance of vermin.

c. Where practicable, exterior openings are equipped with screens or other effective means. When the screening of openings is impracticable, such as in receiving areas, flying insect entry may be controlled by properly positioned air curtains and/or overlapping plastic strips long enough to cover the total door opening. Air curtains comply with ANSI/NSF Standard 37, “Air Curtains for Entranceways in Food and Food Service Establishments”.

4. Check the adequacy of lighting. Lights in the processing area are equipped with protective shields or are of such construction that they will not shatter if broken. Lights are also shielded where unpackaged ice is stored.

5. Check the adequacy of ventilation and humidity.

a. Humidity is regulated in conjunction with ventilation or air movement to control condensation, objectionable odors, and mold growth on ceilings and walls in all areas.

b. Air for ventilation is adequately filtered as appropriate to prevent contamination. Ventilation systems are kept clean and in good repair.

6. Check the water supply. The water supply is readily accessible, of sufficient quantity, and has an acceptable sanitary quality, as established in the EPA Interim Primary Drinking Water Regulations or individual military service regulations.

7. Check the waste disposal procedures.

a. Liquid waste is conveyed to a public sewer through enclosed piping. Floor drains are functional and properly trapped.

b. Dry product waste is placed in suitable covered receptacles, and all waste is collected and disposed of at frequent intervals in a sanitary manner to prevent the attraction of insects and rodents and the development of objectionable odors.

8. Check the toilet, dressing room, and handwashing facilities.

a. Employee toilet facility requirements.

<u>Persons of the same sex</u>	<u>Toilet bowls required</u>
1-15 inclusive	1
16-35 inclusive	2
36-55 inclusive	*3
56-80 inclusive	*4
For each additional 30 persons in excess of 80	*1

\* Urinals may be substituted for toilet bowls but only to the extent of 1/3 of the total number of bowls stated.

## STP 8-91S15-SM-TG

b. Hand washing facilities are provided with liquid or powdered soap dispensers and sanitary single-service towels. A sign directing employees to wash their hands before returning to work is conspicuously posted in all toilet rooms.

c. Dressing rooms are kept clean and orderly.

9. Check the construction and repair of equipment. Equipment and utensils are designed, constructed, and used so as to prevent the adulteration of food with toxic lubricants, fuel, metal fragments, contaminated water, and any other contaminants.

10. Check the cleaning and sanitizing procedures. Cleaning and sanitizing chemicals are being used IAW the manufacturer's recommendation.

11. Check the ice making procedures. Ice is made of potable water only. Ice does not come in contact with water in dipping wells. Only potable water is used in sprays and in filling dipping wells for the removal of ice cakes from the ice cans or tanks.

12. Check the public health controls. Records of any test conducted by the local health department should be kept on file and made available to the military inspector.

13. Check the storage procedures and facilities. Facilities are clean, sanitary, and in good repair. Shelves, cabinets, and dunnage or pallets are used when necessary to protect materials from contamination.

14. Check the vehicles. They are kept clean and in good repair with tight-fitting covered bodies. All vehicle surfaces coming in contact with packaged or unpackaged ice are thoroughly cleaned, washed, and sanitized immediately prior to loading the ice.

15. Check the hygienic practices and health of personnel. Eating, expectorating, or use of tobacco in any form is prohibited in each room and compartment where any food products or supplies are prepared and stored.

16. Collect ice samples for bacteriological analysis. (See task 081-850-0113.)

17. Prepare a checklist and/or report of findings with recommendations for corrective action.

18. Only establishments that attain a sanitary compliance rating (SCR) of 90 or above, providing that no critical defects were noted, are recommended for listing in the Directory of Sanitarily Approved Food Establishments for Armed Forces Procurement.

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Check the general sanitation of the premises.	P	F
2. Check the raw materials.	P	F
3. Check the construction of the building.	P	F
4. Check the adequacy of lighting.	P	F
5. Check the adequacy of ventilation and humidity.	P	F
6. Check the water supply.	P	F
7. Check the waste disposal procedures.	P	F
8. Check the toilet, dressing, and handwashing facilities.	P	F
9. Check the construction and repair of equipment.	P	F
10. Check the cleaning and sanitizing procedures.	P	F
11. Check the ice making procedures.	P	F
12. Check the public health controls.	P	F
13. Check the storage procedures and facilities.	P	F
14. Check the vehicles.	P	F
15. Check the hygienic practices and health of personnel.	P	F
16. Collect ice samples for bacteriological analysis. (See task 081-850-0113.)	P	F
17. Prepare a checklist and/or report of findings with recommendations for corrective action.	P	F
18. Compute SCR.	P	F

**REFERENCES:***Required*

40 CFR 265 App III  
MIL-STD-906

*Related*

AR 40-5

**081-850-0272**

**INSPECT A FIELD WATER SUPPLY POINT**

**CONDITIONS:**

Necessary materials and equipment: a color comparator, sterile sample bottles treated with sodium thiosulfate, DD Form 686, TM 5-6630-215-12, FM 10-52, FM 10-52-1, a clipboard, and an inspection form or paper.

**STANDARDS**

Report all sanitary deficiencies with recommendations for corrective action.

**TRAINING AND EVALUATION**

*Training Information Outline*

1. Inspect site conditions.
  - a. Drainage is provided to prevent ponding at the filling point.
  - b. Dust control measures are practiced to prevent dustborne bacteria from contaminating water and equipment.
  - c. Rodent and insect breeding areas are controlled to prevent the spread of disease to team members and other personnel.
2. Inspect the bivouac area.
  - a. It is located 100 feet downgrade from a well or downstream from a surface water point.
  - b. Latrines are located at least 100 yards downstream or downgrade from the well.
  - c. Handwashing facilities are supplied with soap and water.
  - d. Garbage and trash are properly stored and disposed of. (See task 081-850-0141.)
3. Inspect the water source.
  - a. No pollution sources exist nearer than 2 miles upstream or upgrade from the water point.
  - b. Tests for chemicals and radioactivity are conducted by water purification personnel. The test frequency is related to mission-oriented protective posture (MOPP) conditions as indicated in Figure 3-3.

Threat Level	MOPP	Test Frequency
No known threat	-	Weekly
Slight threat	1	Daily
Medium threat	2	Twice daily
Severe threat	3	Four times daily
Imminent threat	4	Hourly
Known contamination	-	Hourly and before issue of each batch of water

**Figure 3-3**

4. Inspect the reverse osmosis water purification unit (ROWPU).
  - a. Trailer or pallets are level.
  - b. Filter backwash tanks are filled with brine.
  - c. Grounding is used.
  - d. If raw water storage is necessary, separate storage tanks are used for raw water and brine water.
  
5. Inspect the generators.
  - a. Grounding is used.
  - b. A fire extinguisher is present.
  - c. Hearing protection is used by the operators within 50 feet of the unit.
  - d. Ventilation is sufficient to prevent carbon monoxide intoxication.
  
6. Inspect the operator protective equipment. Rubber hip boots and long rubber gloves are worn by the operator when working in water or with waste water in areas where diseases such as schistosomiasis and leptospirosis are endemic or prevalent and when chemical agents are likely.
  
7. Inspect water monitoring and chemicals.
  - a. Water purification personnel test water for color, chloride, total hardness, pH, sulfate, total dissolved solids (TDS), and turbidity. The Water Quality Analysis Set-Engineer (WQAS-E) is used for this purpose.
  - b. Chemical usage and readings of equipment gauges and meters are reported on DA Form 1713-R.

## STP 8-91S15-SM-TG

c. Chlorine residuals of treated water are checked at least every hour. Water purification personnel add sufficient chlorine to maintain a 2.0 ppm FAC residual after a 30 minute contact time.

d. The Water Testing Kit - Chemical Agents (M272) contains sufficient analysis materials for a 1-day testing at MOPP 4.

8. Inspect water storage.

a. Tanks are level and maintained in good sanitary condition.

b. A safety bottom apron is placed under tanks, and open top tanks are covered.

c. Tanks are maintained in sanitary condition, and the capacity is sufficient to support issue operations.

9. Inspect water distribution procedures.

a. Water purification personnel adjust the chlorine level at potable water issue points along the Tactical Water Distribution System (TWDS) and bulk transport so that the FAC residuals remain at 2.0 ppm. This may require chlorine levels at the production site greater than 2 ppm after 30 minute contact time. If chlorine residuals at the end of the TWDS or upon completion of bulk water transport are greater than 0 ppm but less than 2 ppm FAC, the water must be rechlorinated to 2 ppm FAC. It may then be issued immediately. If the chlorine residual falls below 0 ppm FAC, the water must be rechlorinated and held for 30 minutes prior to issue.

b. Stand pipe hoses are at least 4 feet above ground surface to prevent contamination.

c. Hose nozzles are clean and kept off the ground.

d. Operators check water container interiors for cleanliness prior to filling them.

10. Inspect records.

a. Blank forms on hand should be sufficient for the anticipated duration of operations or until resupply can be affected.

b. The following forms will be completed by the water purification personnel:

(1) DA Form 1713-R, Daily Water Production Log - ROWPU.

(2) DA Form 1714-R, Daily Water Issue Log.

11. Inspect the storage of supplies.

- a. Fuel and chemicals on hand are sufficient for the anticipated duration of operation or until resupply can be effected.
- b. Chemical containers are labeled properly, capped tightly, and kept dry.
- c. Activated carbon and calcium hypochlorite are stored separately to prevent mixing which could result in a violent reaction.

12. Sample product water.

a. The PVNTMED inspector will collect treated water samples. These samples will be analyzed for the following constituents:

- (1) Chloride.
- (2) Chlorine residual.
- (3) Color.
- (4) Hardness (magnesium).
- (5) pH.
- (6) Sulfate.
- (7) Total dissolved solids.
- (8) Turbidity.
- (9) Chemical agents.
- (10) Radioactivity.
- (11) Coliform.

b. The concentration of these constituents with the exception of chlorine residual does not exceed the standards in Appendix C of FM 10-52. The following action should be taken by the PVNTMED inspector, if one or more of these constituents exceeds the applicable standard:

- (1) Verify the results and immediately notify the water purification section team chief of the problem.

**STP 8-91S15-SM-TG**

(2) Suggest possible ways to correct the problem and resample water after corrections have been implemented.

(3) If the problem is not resolved, notify the command surgeon of the problem immediately.

(4) Review the daily water production log for units that received nonacceptable water and take corrective action, if necessary.

(5) Maintain the chlorine residual at 5 ppm for all water treated by methods other than reverse osmosis, or when the potential exists for endemic waterborne disease and the medical threat as prescribed by the command surgeon.

13. Select the correct formula for water supply problems.

a. Conversion of pounds of chlorine to ounces of chlorine:

$$\text{ounces of calcium hypochlorite} = \text{pounds of chlorine} \times 22.9$$

b. Calculation of pounds of chlorine needed:

$$\text{pounds of chlorine} = (\text{gallons of water} \times 8.3 \times \text{ppm}) \div 1,000,000$$

c. Calculation of gallons of water that can be treated with a given supply of chlorine:

$$\text{gallons of water} = (\text{pounds of chlorine} \times 1,000,000) \div (8.3 \times \text{ppm})$$

d. Calculation of parts per million chlorine present in a treatment tank:

$$\text{ppm} = (\text{pounds of chlorine} \times 1,000,000) \div (\text{gallons of water} \times 8.3)$$

***Evaluation Guide***

**Performance Measures**

**Results**

1. Inspect site conditions.	P	F
2. Inspect bivouac area.	P	F
3. Inspect water sources.	P	F
4. Inspect the reverse osmosis water purification unit (ROWPU).	P	F
5. Inspect the generators.	P	F
6. Inspect the operator protective equipment.	P	F

<b>Performance Measures</b>	<b>Results</b>	
7. Inspect water monitoring and chemicals.	P	F
8. Inspect water storage.	P	F
9. Inspect water distribution procedures.	P	F
10. Inspect the records.	P	F
11. Inspect the storage of supplies.	P	F
12. Sample product water.	P	F
13. Select the correct formula for water supply problems.	P	F

**REFERENCES:**

*Required*

*Related*

TM 5-6630-215-12  
 FM 10-52  
 FM 10-52-1

None

**PERFORM A POLLUTION SURVEY OF A STREAM**

**CONDITIONS**

Necessary materials and equipment: a clipboard, glass tempered bottles, dissolved oxygen (DO) test equipment, a thermometer, and a map of the source area.

**STANDARDS**

Correctly determine the presence or absence of pollutants in a stream and make appropriate recommendations.

**TRAINING/EVALUATION**

*Information Training Outline*

1. Survey the selected stream.

a. Check the stream for a distance of 2 miles upstream for evidence of major sources of pollution. These sources may be landfills, agricultural and livestock raw wastes, industrial and domestic sewage discharges, POL storage or distribution sites, or the overloading of the natural body of water beyond its reserve or recuperative capacities.

b. Conduct a temperature, turbidity, total dissolved solids, and pH test for each proposed water purification site.

c. Look for evidence of contamination, such as dead fish or vegetation, excessive algae growth, oil slicks, and sludge deposits.

2. Identify the type of pollution.

a. Physical nuisances. These include offensive odors and organic matter putrefaction; unsightliness of floating solids, oils, grease, scum, and debris; and turbidity and color caused by dissolved and suspended matter. The body of water's ability to neutralize these effects is determined by its volume and velocity. For example, if a stream is flowing swiftly, bulky deposits will not appear, and the larger solids are broken up and carried downstream. Debris and large floating solids, however, may still be a problem. Further dilution of these offending wastes as they are carried downstream likewise reduces odor and discoloration. Usually, these nuisances are not as important as the other types, and they are prevented by primary sewage treatment. A stream may be heavily overloaded by the effluent from a modern sewage treatment plant simply because it does not have the biological ability to handle the amount of organic matter being discharge from the plant.

b. Chemical detriments. These include the depletion of oxygen in the water by the biochemical oxidation of organic matter. When total exhaustion of the dissolved oxygen occurs, odors and the destruction of plants and fish life result. Secondly, other chemicals primarily from industrial wastes may be toxic, discolor the water, destroy paints on boats, and more important, render the water unsuitable as a source of water supply making it difficult to treat. If phenols are discharged in a stream used as a water supply, normal treatment methods will not remove the phenols, and with chlorination the water is rendered unpalatable by the formation of chlorophenols.

c. Bacterial pollution. The most probable number of coliform organisms is of significance, particularly if the body of water is used as a source of water supply, as a bathing area, or if it passes over shellfish. A body of water's capacity for this type of pollution also involves dilution but is primarily a matter of time from the point of discharge to the area of use.

### 3. Identify a stream's zones of self-purification.

a. Zone of degradation. In this zone pollution has recently been introduced. The dissolved oxygen (DO) is reduced to less than 1/2 of its original value. Algae and fish life are declining. Water is turbid and sludge deposits are forming on the stream bed. In addition, typical bottom worms together with sewage fungi appear.

b. Zone of active decomposition. In this zone DO may be reduced to zero. Fish life is absent and the water is darker and grayish in color. Odors from putrefaction of organic matter including hydrogen sulfide and methane gases are given off. Scum may appear on the surface. Threadlike organisms of grayish pink and cream tint appear.

c. Zone of recovery. In this zone the DO increases and the water is less turbid with no unpleasant odors given off. Algae reappear and fungi disappear. Some of the hardier fish such as carp will appear.

d. Zone of cleaner water. In this zone the DO approaches saturation, and the natural stream conditions are restored. Trout and other game fish appear.

### 4. Collect the DO samples.

a. Grab sampling. This is a single sample of the water taken at any one designated time. It involves nothing more than collecting a designated amount of water in a container at a specific point in the stream.

b. Composite samples. These samples are collected by mixing together samples that have been collected at regular intervals (usually 1 hour) over a 24 hour period. Keep the samples at or below 4° C during compositing. Use the same criteria as for storage of grab samples.

c. The biochemical oxygen demand (BOD) determination is an empirical test in which standardized laboratory procedures are used to determine the relative oxygen requirements of wastewater, effluents, and polluted waters. The test measures the oxygen requirements for the biochemical degradation of organic material and the oxygen used to oxidize inorganic material such as sulfides and ferrous iron. The method consists of placing a sample in a full, airtight bottle and incubating the bottle under specified conditions for

## STP 8-91S15-SM-TG

a specific time. Dissolved oxygen (DO) is measured initially and after incubation. The BOD is computed from the difference between the initial and final DO.

5. Estimate the stream flow. To determine the stream flow in gallons per minute the following formula must be used:

$$Q = 6.4 \times A \times V$$

where Q = Quantity of water in gallons per minute

6.4 = Constant. There are 7.5 gallons of water per cubic foot. However, because of error in stream measurement, 7.5 is reduced to 6.4.

V = Velocity of the stream. This figure is obtained by noting the time it takes a twig or floating object to travel a known distance.

A = Area of the stream in square feet. This figure is obtained by multiplying the width of the stream by the depth of the stream.

6. Collect water samples for bacteriological analysis. (See task 081-850-0133.)

7. Deliver DO samples to the supporting laboratory and process them for analysis. If analysis is not started within 2 hours of sample collection, keep the samples at or below 4° C from the time of collection. Begin analysis within 6 hours of collection. When this is not possible because the sampling site is distant from the laboratory, store the samples at or below 4° C and report the length and temperature of storage with the results. In no case start analysis more than 24 hours after grab sample collection.

8. Report the findings and recommendations for corrective action.

### *Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Survey the selected stream.	P	F
2. Identify the types of pollution.	P	F
3. Identify a stream's zones of self-purification.	P	F
4. Collect DO samples.	P	F
5. Estimate the stream flow.	P	F
6. Collect water samples for bacteriological analysis.	P	F

**Performance Measures**

**Results**

- 7. Deliver the DO samples to the support laboratory for analysis.
- 8. Report the findings and recommendations for corrective action.

P F  
P F

**REFERENCES:**

*Required*

*Related*

None

FM 8-250

081-850-0274

**INSPECT A MEDICAL TREATMENT FACILITY'S INFECTIOUS  
WASTE DISPOSAL PROCEDURES**

**CONDITIONS**

Necessary materials and equipment: a clipboard, TG 177, and an inspection form.

**STANDARDS**

Report all deficiencies with recommendations for corrective action.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                                                                                                                                                                                                  |   |   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| 1. Check the training program.                                                                                                                                                                                                                   | P | F |
| a. Healthcare facility waste handlers have received initial training in the proper handling and disposal of all wastes. In addition, handlers receive periodic (at least annual) refresher training on program changes and current developments. |   |   |
| b. Training guidelines for the safe handling and disposal of infectious waste are in accordance with TG 177.                                                                                                                                     |   |   |
| 2. Check the generating activity storage procedures.                                                                                                                                                                                             | P | F |
| a. Activities generating infectious waste store it in the area of generation until collected. Containers with lids and lined with impervious, tear-resistant, and distinctively colored plastic bags will be used in the area of generation.     |   |   |
| b. Container liners will be tightly sealed with twist ties, rubber bands, and /or tape, before leaving the area of generation.                                                                                                                   |   |   |
| c. The waste is collected at regular intervals by MTF or contractor personnel trained in the proper collection and handling procedures.                                                                                                          |   |   |
| 3. Check the transportation of waste within the health care facility.                                                                                                                                                                            | P | F |
| a. Infectious waste is transported in the original container. Sealed bags can be transferred to larger carts. This waste must be manually transported to the incinerator or autoclave.                                                           |   |   |

**Performance Measures**

**Results**

b. Carts used to transport infectious waste are easy to clean and do not disclose their contents to hospital personnel. Soiled carts are cleaned after each use.

c. Routes used for transporting infectious waste within the MTF are carefully selected to minimize patient and personnel exposure and congestion.

4. Check the treatment and disposal of infectious waste.

P F

a. Infectious waste is incinerated or autoclaved (steam) as a method of treatment to render the waste noninfectious. The ash, or noninfectious waste from treatment by steam sterilization, can be disposed of at the sanitary landfill.

b. All infectious and pathological waste incinerators are permitted as required by state or local air pollution regulations. When off-post incinerator contractors are used, receipts of the given identifiable quantity of waste accepted at the disposal site will be returned and made part of the generators' record of waste production and disposal.

c. Steam sterilized pathological waste is subjected to destruction (grinder) and flushed into the sanitary sewer or incinerated.

5. Check the treatment and disposal of liquid waste.

P F

a. Feces, urine, vomitus, and blood are disposed of in the sanitary sewer. Ensure that contamination of hospital personnel does not occur during disposal.

b. Liquids from the microbiology laboratory are steam sterilized before disposal in the sanitary sewer. Liquids from the surgical suite may require steam sterilization at the discretion of the infection control committee before disposal in the sanitary sewer or incinerator.

6. Check the disposal of needles, syringes, and sharps.

P F

a. Immediately following use, needles, syringes, and other sharps are placed into rigid impervious containers. These containers, when full, are sealed and transported either separately or in larger infectious waste containers along routes used for other infectious waste.

b. These items should not be recapped, clipped, or destroyed prior to being placed into the disposal containers. These items are transported manually to the incinerator, autoclave, or other treatment system.

**STP 8-91S15-SM-TG**

**Performance Measures**

**Results**

7. Check the contingency plans. Plans are developed to ensure safe storage, transportation, and disposal in the event the primary method is temporarily disabled or unavailable.

P F

8. Prepare a report of findings with recommendations for corrective action.

P F

**REFERENCES;**

*Required*

*Related*

TG 177

AR 40-5

**081-850-0281**

**IDENTIFY AN ARTHROPOD**

**CONDITIONS**

Necessary materials and equipment: a microscope, a light source, forceps, insect pins, cork blocks, lens tissue, and an identification key.

**STANDARDS**

Correctly identify the arthropod.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                                   |   |   |
|-----------------------------------------------------------------------------------|---|---|
| 1. Collect the arthropod. (See task 081-850-0152.)                                | P | F |
| 2. Set up the equipment and materials.                                            | P | F |
| 3. Compare the arthropod to the appropriate identification key. (See Appendix B.) | P | F |
| 4. Correctly identify the arthropod.                                              | P | F |

**REFERENCES:**

*Required*

*Related*

None

TM 5-632  
FM 8-250

081-850-0282

**IDENTIFY A RODENT**

**CONDITIONS**

Necessary materials and equipment: gloves, a weighing scale, a measuring device, a hand lens, and an identification key.

**STANDARDS**

Correctly identify the rodent.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                                |   |   |
|--------------------------------------------------------------------------------|---|---|
| 1. Collect the rodent. (See task 081-850-0151.)                                | P | F |
| 2. Compare the rodent to the appropriate identification key. (See Appendix B.) | P | F |
| 3. Correctly identify the rodent.                                              | P | F |

**REFERENCES:**

*Required*

*Related*

None

TM 5-632

FM 8-250

081-850-0283

**IDENTIFY A NON-RODENT VERTEBRATE PEST**

**CONDITIONS**

Necessary materials and equipment: gloves, a weighing scale, a measuring device, a hand lens, and an identification key.

**STANDARDS**

Correctly identify the nonrodent vertebrate pest.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                  |   |   |
|------------------------------------------------------------------|---|---|
| 1. Compare the pest to the identification key. (See Appendix B.) | P | F |
| 2. Correctly identify the pest.                                  | P | F |

**REFERENCES:**

*Required*

*Related*

None

TM 5-632  
FM 8-250

081-850-0284

**PERFORM AN ENTOMOLOGICAL SURVEY**

**CONDITIONS**

Necessary materials and equipment: a clipboard, survey and collection equipment for the specimen to be surveyed, and maps of the area.

**STANDARDS**

Correctly determine the presence or absence of entomological pests, and report the findings with recommendations for corrective action and preventive measures.

**TRAINING/EVALUATION**

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Check the equipment and materials.	P	F
2. Make field notes.	P	F
3. Collect the specimens. (See tasks 081-850-0151 and -0152.)	P	F
4. Identify the specimens. (See tasks 081-850-0281, -0282, and -0283.)	P	F
5. Record the survey data.	P	F
6. Prepare the report of findings with recommendations for corrective action and preventive measures.	P	F

**REFERENCES:**

*Required*

None

*Related*

TM-5-632  
FM 8-250

## 081-850-0291

## CONDUCT A LIMITED VENTILATION SURVEY

## CONDITIONS

Necessary materials and equipment: a clipboard, an air velocity meter, and a ventilation survey form or paper.

## STANDARDS

Report the findings with recommendations.

## TRAINING/EVALUATION

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>
1. Locate and determine the size of the exhaust fans/vents.	P F
2. Determine the room volume, when appropriate.	P F
3. Select the sampling points.	P F
a. Rectangular ducts. Divide the duct into not less than 16 equal sections with the diameters not less than 6 inches apart.	
b. Round ducts. For ducts less than 6 inches in diameter, use a 6 point traverse (6 points on two traverses). For ducts 6 to 40 inches in diameter, use a 10 point traverse. For ducts 40 inches in diameter or more, use a 20 point traverse.	
4. Measure the air velocity.	P F
5. Calculate the data using the formula:	P F
Q = area x velocity (If the area was figured in square inches, divide by 144.)	
Area = length x width (square/rectangle) Area = $r^2$ (circle)	
6. Determine the adequacy of the ventilation.	P F
7. Prepare a survey form and/or report of findings with recommendations.	P F

**STP 8-91S15-SM-TG**

**REFERENCES:**

*Required*

*Related*

Ventilation Manual

AR 40-5

081-850-0293

**PERFORM A NOISE HAZARD SURVEY**

**CONDITIONS**

Necessary materials and equipment: a sound level meter, a sound level calibrator, a jeweler’s screwdriver, hearing protection devices, a clipboard, DD Form 2214, DA Pam 40-501, TG 040, and TG 041.

**STANDARDS**

Report the findings with recommendations for improvement.

**TRAINING/EVALUATION**

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>
1. Identify the noise source(s).	P F
2. Measure the sound level(s). (See task 081-850-0161.) Survey all suspected noise hazardous areas at least once annually and within 30 days of any change in operations.	P F
3. Check the posting of noise hazardous areas and equipment.	P F
a. Ensure that the unit commander or supervisors have danger signs positioned at entrances, on the periphery of noise hazardous areas.	
b. Ensure that decals are attached to noise hazardous equipment.	
4. Check the hearing protection devices.	P F
5. Check the engineering control available.	P F
6. Gather the names and social security numbers of all personnel exposed to hazardous noise levels.	P F
7. Determine if exposed personnel are enrolled in the Army Hearing Conservation Program.	P F
8. Complete DD Form 2214. Information from steps 1 through 7 should be included on this form.	P F

**STP 8-91S15-SM-TG**

- |                                                                                                      |   |   |
|------------------------------------------------------------------------------------------------------|---|---|
| 9. Determine compliance with standards.                                                              | P | F |
| 10. Establish noise contours.                                                                        | P | F |
| 11. Prepare a report of findings with recommendations for corrective action and preventive measures. | P | F |

**REFERENCES:**

*Required*

DA Pam 40-501  
TG 040  
TG 041

*Related*

AR 40-5  
FM 8-250

081-850-0294

**TEST FOR AIRBORNE TOXIC SUBSTANCES****CONDITIONS**

Necessary materials and equipment: a clipboard, a direct reading instrument or appropriate collecting device with sample media, CHPPM Form 9-R, and TG 022.

**STANDARDS**

Correctly determine the absence or concentration of a toxic substance in the sampled air and report it, or collect the air sample properly and submit it to the USACHPPM laboratory.

**TRAINING/EVALUATION***Evaluation Guide***Performance Measures****Results**

1. Check and prepare the equipment and materials.	P	F
2. Record the collection point data.	P	F
3. Measure or collect the specific samples.	P	F
4. Report the data and the direct readings or submit the sample and the data to the USACHPPM laboratory for analysis.	P	F

**REFERENCES:***Required**Related*

TG 022  
NIOSH Pub 77-173

TG 141

081-850-0295

**VISUALLY INSPECT AN IONIZING OR NONIONIZING  
RADIATION SOURCE**

**CONDITIONS**

Necessary materials and equipment: a clipboard and a checklist or paper.

**STANDARDS**

Identify all deficiencies and report them with recommendations for corrective action.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

1. Check the warning signs. All controlled areas are properly marked, have proper warning signs, and, where required, have proper warning signals and safety switches.

P F

2. Check the exposure controls/procedures.

P F

a. Standing operating procedures (SOP) are published and enforced. They specify the safety policies concerning operational limitations placed upon equipment, and the control of the movement of personnel to ensure that the exposure of personnel is minimized.

b. All personnel working in or frequenting any portion of a controlled area where radioactive materials are used or stored, or where equipment capable of producing radiation is energized, will be informed of the radiation hazard involved and instructed regarding the rules and procedures to be observed.

c. Smoking, eating, drinking, or applying cosmetics are not permitted in work areas where unsealed radioactive materials are used or stored. Food or drink are not stored in an area where radioactive materials are stored.

3. Check the individual protection devices.

P F

a. Protective clothing and respiratory protective equipment may be required to minimize the exposure of workers who may be exposed to concentrations of airborne radioactive materials.

**Performance Measures**

**Results**

b. Establish an adequate respiratory protection program to ensure that equipment appropriate to the potential hazard is selected, used, and maintained.

4. Check badge control (ionizing sources). The use of personal dosimetry is in accordance with AR 40-14.

P F

5. Prepare a checklist and/or report of findings with recommendations for corrective action.

P F

**REFERENCES:**

*Required*

None

*Related*

AR 40-5  
 AR 40-14  
 TB Med 523  
 FM 8-250  
 DA Pam 40-18

081-850-0202

**CONDUCT A FOODBORNE DISEASE ILLNESS INVESTIGATION**

**CONDITIONS**

Necessary materials and equipment: a foodborne disease outbreak investigation kit, CDC Form 52.13, an interview form or paper, and TB Med 530.

**STANDARDS**

Report the findings with recommendations for corrective action and preventive measures.

**TRAINING/EVALUATION**

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Receive the preliminary case diagnosis.	P	F
2. Ensure collection of stool and vomitus specimens from ill personnel for laboratory analysis.	P	F
3. Interview the patients.	P	F
4. Contact the food service facility and require that all leftover or suspected foods be set aside for laboratory analysis.	P	F
5. Identify whether other members of the organization with whom each patient commonly eats are suffering from gastrointestinal complaints.	P	F
6. Conduct a sanitary inspection of the suspected facility and ensure collection of the following information:	P	F
a. What food was served at all suspect meals before the outbreak onset.		
b. How the food was prepared and served (tabulate time and methods).		
c. Whether the foods and methods were conducive to bacterial contamination and foodborne illness.		
d. When a food was received in the kitchen, when issued, and from what source.		
e. Any discrepancies observed at the time of receipt.		

**Performance Measures**

**Results**

- f. At what temperatures food was stored before cooking.
  - g. How long the food was held prior to cooking.
  - h. The time, temperature, and manner in which food was held after cooking.
  - i. If the suspect food was previously consumed without harmful results.
  - j. If any of the suspect food had been recently condemned.
  - k. Which kitchens served persons who later became ill.
  - l. What significant leftover or uncooked food is left in storage.
  - m. If food handlers are affected with cuts, sores, boils, or colds which sent suspects for medical examination.
7. Obtain samples from the suspect meal(s) for laboratory analysis. P F
8. Calculate the illness attack rate for each food item and the attack rate differentials. Use CDC Form 52.13 to avoid wide differences usually found among those eating a certain item of food and those becoming ill (attack rate). P F
9. Receive laboratory findings on the submitted specimens. P F
10. Determine the source of infection. P F
11. Prepare a report of findings with recommendations for corrective action and preventive measures. P F

**REFERENCES:**

*Required*

*Related*

TB Med 530

FM 8-250

081-850-0203

CONDUCT A MALARIA INVESTIGATION

CONDITIONS

Necessary materials and equipment: a clipboard, mosquito collecting equipment, and interview forms or paper.

STANDARDS

Report the findings with recommendations.

TRAINING/EVALUATION

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Receive the case diagnosis.	P	F
2. Interview the patient(s).	P	F
3. Investigate the places visited by the patient(s), to include interviewing indigenous personnel.	P	F
4. Ensure the collection of blood specimens from indigenous personnel for laboratory analysis.	P	F
5. Collect the mosquito adults and larvae from the suspected areas. (See task 081-850-0152.)	P	F
6. Submit the mosquito specimens to the laboratory for identification and examination. (See task 081-850-0154.)	P	F
7. Log and report the survey and laboratory data as required by the entomologist/epidemiologist.	P	F
8. Report findings and recommendations to the appropriate public health or engineer agency.	P	F

**REFERENCES:**

*Required*

None

*Related*

FM 8-33  
TM 5-632  
FM 8-250

081-850-0204

CONDUCT A HEPATITIS INVESTIGATION

CONDITIONS

Necessary materials and equipment: a clipboard, a case report form, and an interview form or paper.

STANDARDS

Report the source of infection and identify the contacts.

TRAINING/EVALUATION

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Receive the case diagnosis.	P	F
2. Interview the patient.	P	F
3. Identify the contacts of the patient(s).	P	F
4. Forward information on civilian and nonlocal military contacts to the appropriate health agencies.	P	F
5. Locate, interview, and schedule local military contacts for evaluation and treatment, as needed.	P	F
6. Schedule follow-up evaluations for the patient(s) and local military contacts.	P	F
7. Forward the case report form to the appropriate health agencies, if required.	P	F

REFERENCES:

*Required*

None

*Related*

FM 8-33

081-850-0205

CONDUCT A VENEREAL DISEASE INVESTIGATION

CONDITIONS

Necessary materials and equipment: a case report form, an interview form, and CDC Form 73.2936S.

STANDARDS

Report the contact information, follow up on the cases, and maintain control records.

TRAINING/EVALUATION

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Receive the case diagnosis.	P	F
2. Interview the patient on sexual activities.	P	F
3. Enter the information on CDC Form 73.2936S and the case report form, as required.	P	F
4. Forward the completed forms to the appropriate health agency or agencies, as required.	P	F
5. Locate and interview local military contacts.	P	F
6. Follow up on civilian and/or nonlocal military contact investigations.	P	F
7. Follow up on the treatment of the patient.	P	F
8. Maintain the control records.	P	F

**REFERENCES:** None

**SECTION III  
SKILL LEVEL 3 TASKS**

---

**081-850-0311**

**MANAGE AN ENTOMOLOGICAL FIELD SURVEY**

**CONDITIONS**

Necessary materials and equipment: an entomological survey set.

**STANDARDS**

Determine the presence or absence of vectors. Identify the conditions for potential infestation and report them.

**TRAINING/EVALUATION**

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Establish the appropriate survey procedures.	P	F
2. Determine the manpower requirements.	P	F
3. Supervise selection of the equipment: killing bottles, nets, suction bottles, small camel's hair brush, relaxing jars, spreading boards, cardboard boxes, insect pins, and any other necessary equipment required to collect insects.	P	F
4. Supervise collection of the specimens. (See task 081-850-0152.)	P	F
5. Supervise preparation of the specimens for storage. (See task 081-850-0153.)	P	F
6. Supervise identification of the specimens. (See task 081-850-0281.)	P	F
7. Supervise preparation of the specimens for shipment. (See task 081-850-0154.)	P	F
8. Prepare a report of findings.	P	F

**REFERENCES:**

*Required*

None

*Related*

TM 5-632  
FM 8-250

081-850-0312

MANAGE A PEST CONTROL PROGRAM

CONDITIONS

Necessary materials and equipment: findings of entomological surveys, control equipment and pesticide for the specific pest, TM 5-632, and manpower.

STANDARDS

Reduce the target pests or maintain them at an acceptable level without endangering humans or the environment.

TRAINING/EVALUATION

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| <ol style="list-style-type: none"> <li>1. Supervise collection of the biological data.             <ol style="list-style-type: none"> <li>a. A list of the principal pests of the area and their characteristics which affect control efforts.</li> <li>b. Climatic effects on seasonal distribution and on workload requirements.</li> <li>c. Requirements for protection of beneficial insects.</li> <li>d. Precautions required for protection of wildlife and domestic animals.</li> </ol> </li> <li>2. Determine the most effective control method.             <ol style="list-style-type: none"> <li>a. Chemical. Preventive treatment should be stressed whenever possible and corrective treatment only when necessary.</li> <li>b. Biological. Protection and use of natural parasites and predators as well as biological pesticides.</li> <li>c. Mechanical. Improve construction and maintenance practices to eliminate access of pests to structures and areas.</li> <li>d. Sanitary. Good housekeeping and sanitation practices to eliminate sources of problems.</li> </ol> </li> </ol> | <p>P F</p> <p>P F</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|

**STP 8-91S15-SM-TG**

**Performance Measures**

**Results**

- e. Regulatory. Support of quarantine regulations to limit spread of problems.
- 3. Establish the procedures for pest control. P F
- 4. Determine the control equipment and pesticide requirements. (See task 081-850-0156.) P F
- 5. Determine the manpower requirements and training. P F
  - a. After the list of principal pests has been compiled, biological characteristics evaluated, and types of controls selected, use that information to estimate the manpower requirement and the specific training required.
  - b. Manpower staffing requirements vary with the location, climate, and size of installation or area. Consult with the major command entomologist before making the final determination.
- 6. Organize the manpower and equipment. P F
- 7. Conduct the control operations. (See task 081-850-0156.) P F
- 8. Report the control data. P F
- 9. Resurvey the area to determine the effectiveness of control measures. (See task 081-850-0284.) P F
- 10. Evaluate the resurvey data. P F
- 11. Determine the reasons for control ineffectiveness, if applicable. P F
- 12. Report the findings. P F
- 13. Conduct retreatment or maintenance measures, as required. P F

**REFERENCES:**

***Required***

***Related***

TM 5-632

FM 8-250

081-850-0321

**SELECT A FIELD WATER SUPPLY SOURCE**

**CONDITIONS**

Necessary materials and equipment: a flow measuring device, area maps, aerial photos, FM 10-52, FM 10-52-1, and field reports.

**STANDARDS**

Select the source which will best support the operational requirements.

**TRAINING/EVALUATION**

*Evaluation Guide*

**Performance Measures**

**Results**

- |                                                                                                                                                                            |        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 1. Determine the water requirements. Estimate the quantity of water needed based on the climatic conditions, type of activity, tactical situation, and personnel strength. | P    F |
| 2. Locate the water sources.                                                                                                                                               | P    F |

**NOTE:** Surface water source reconnaissance is accomplished by the water treatment specialist (MOS 77W). These individuals recommend potential locations for water treatment and supply points. These individuals are also responsible for setting up, operating, and maintaining water purification, storage, and distribution equipment. The Preventive Medicine Specialist assists water purification units in water source reconnaissance, approves water sources and containers, and analyzes treated water to ensure that water quality standards are met.

- |                                                                                                                                                                                                                                                                                                                                                                                                                                     |        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 3. Determine the quantity of each water source. (See task 081-850-0273.)                                                                                                                                                                                                                                                                                                                                                            | P    F |
| 4. Determine the quality of each water source.                                                                                                                                                                                                                                                                                                                                                                                      | P    F |
| <ul style="list-style-type: none"> <li>a. Garbage, sewage, industrial waste, pesticides, and NBC agents are all possible contaminants of raw water.</li> <li>b. Check for suspended impurities such as disease organisms, silt, bacteria, and algae. Check for dissolved impurities such as salts (calcium, magnesium, and sodium), iron, manganese, and gases (oxygen, carbon dioxide, hydrogen sulfide, and nitrogen).</li> </ul> |        |

**STP 8-91S15-SM-TG**

**Performance Measures**

**Results**

- |                                                                                                                                                                                                       |   |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| 5. Determine the accessibility of each water source.                                                                                                                                                  | P | F |
| a. It is accessible to vehicles and personnel. It has a good road net with turnarounds, cover, and concealment. An adequate parking/staging area has also been provided.                              |   |   |
| b. Roads are able to withstand, under all weather conditions, the heaviest vehicles using the water point. The purification site is on a through road when possible, but not on the main supply road. |   |   |
| 6. Determine the site condition of each water source.                                                                                                                                                 | P | F |
| a. Drainage. The site is on high porous ground. The proposed area for the purification equipment is level. The slope allows for drainage away from the operation.                                     |   |   |
| b. Security. The site provides cover and concealment. It is a safe distance from prime artillery and aerial targets. The site provides security against ground attack and sabotage.                   |   |   |
| 7. Determine the proximity of each water source to the users.                                                                                                                                         | P | F |
| 8. Survey an average of three sites for each proposed water point when possible.                                                                                                                      | P | F |
| 9. Complete DA Form 1712-R for each site surveyed.                                                                                                                                                    | P | F |
| 10. Ensure that the team supervisor forwards the form to the G3/S3 of the tasking unit.                                                                                                               | P | F |

**REFERENCES:**

***Required***

***Related***

FM 10-52  
FM 10-52-1

None

081-850-0323

CONDUCT A SURVEY FOR AIRBORNE TOXIC SUBSTANCES

CONDITIONS

Necessary materials and equipment: a clipboard, a direct reading instrument, appropriate collecting devices with sample media as required, and appropriate forms and references.

STANDARDS

Report the presence or absence of toxic substances with recommendations for corrective action and/or preventive measures.

TRAINING/EVALUATION

*Evaluation Guide*

<b>Performance Measures</b>	<b>Results</b>	
1. Determine the substances to sample.	P	F
2. Select and prepare the equipment and materials.	P	F
3. Record the collection point data.	P	F
4. Measure or collect the samples. (See task 081-850-0294.)	P	F
5. Submit the nondirect reading samples to the supporting Army or local laboratory for analysis.	P	F
6. Calculate and interpret the results.	P	F
7. Determine the protection requirements.	P	F
8. Prepare a report of findings and recommendations for corrective action and/or preventive measures.	P	F

REFERENCES:

*Required*

*Related*

NIOSH Pub 77-173  
Threshold Limit Values

None

FIELD EXPEDIENT SQUAD BOOK		SHEET				
For use of this form, see AR 350-37; the proponent agency is DCSOPs		OF				
USER APPLICATION	SOLDIER'S NAME					
TASK NUMBER AND SHORT TITLE	GO	NO-GO	GO	NO-GO	GO	NO-GO
STATUS						
081-850-0111, Inspect a Food Service Facility						
081-850-0112, Inspect Field Food Service Facility						
081-850-0113, Collect an Ice Sample						
081-850-0123, Collect a Treated Water Sample						
081-850-0124, Perform Bacter Analysis on Water						
081-850-0125, Perform Chem Analysis on Water						
081-850-0126, Perf Chem Agent Test on Water						
081-850-0127, Inspect Field Unit Water Supply						
081-850-0128, Inspect for Cross Connections						
081-850-0131, Collect Samples from Swim Pools						
081-850-0132, Inspect a Swimming Pool						
081-850-0133, Collect Sample from Bathing Area						
081-850-0134, Inspect Natural Bathing Area						

EDITION OF DEC 82 TO BE USED

DA FORM 5165-R, SEP 85

FIELD EXPEDIENT SQUAD BOOK		SHEET												
For use of this form, see AR 350-37; the proponent agency is DCSOPs		OF												
USER APPLICATION	SOLDIER'S NAME													
TASK NUMBER AND SHORT TITLE	STATUS													
	GO	NO-GO	GO	NO-GO	GO	NO-GO	GO	NO-GO	GO	NO-GO	GO	NO-GO	GO	NO-GO
081-850-0141, Survey Refuse Waste Disposal Ops														
081-850-0143, Inspect a Sanitary Landfill														
081-850-0151, Collect Rodents														
081-850-0152, Collect Arthropods														
081-850-0153, Process Entom Spec for Storage														
081-850-0154, Process Entom Spec for Shipment														
081-850-0156, Conduct Pest Control Ops														
081-850-0161, Measure Sound Level														
081-850-0162, Determine a WBGT Index														
081-850-0163, Determine the Wind Chill Factor														
081-850-0164, Inspect Barber/Beauty Shop														
081-850-0165, Inspect Troop Housing														
081-850-0166, Inspect Field Hygiene Facilities														

EDITION OF DEC 82 TO BE USED

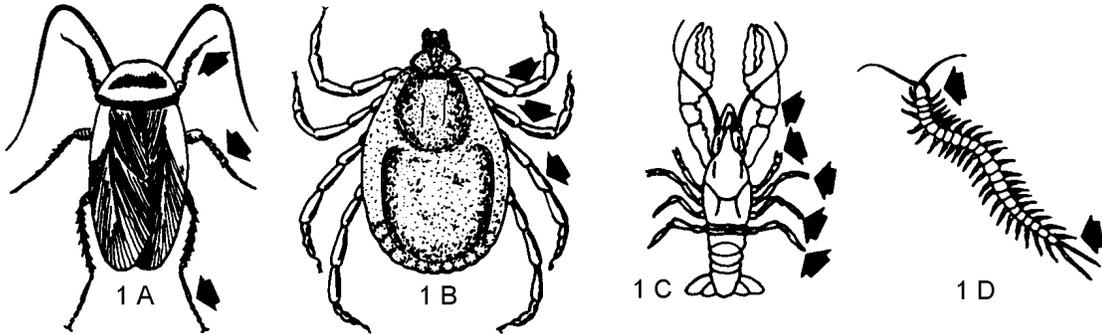
DA FORM 5165-R, SEP 85



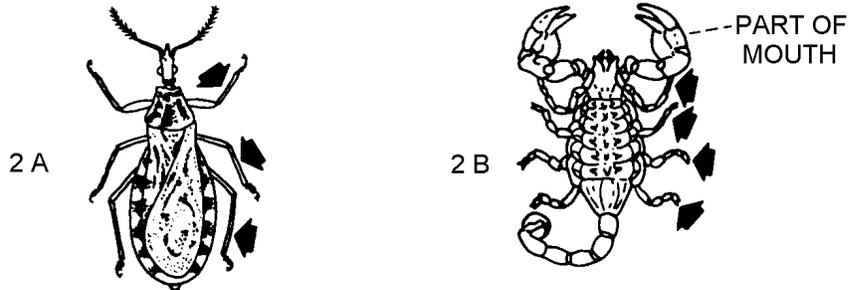


APPENDIX B

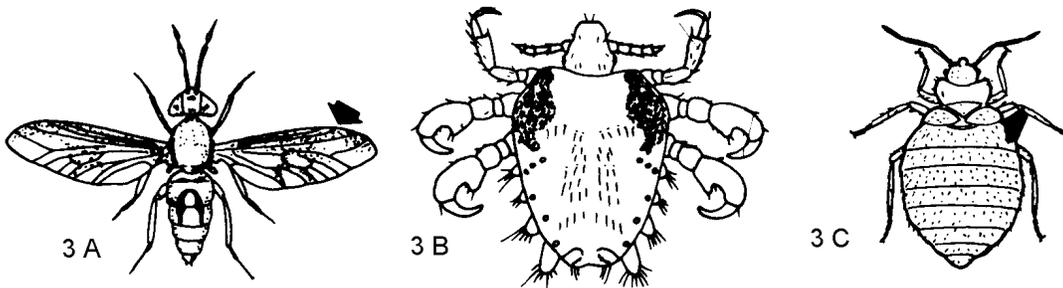
1. Three or 4 pairs of walking legs (1 A & B) .....2  
 Five or more pairs of walking legs (1 C & D) ..... 33



2. Three pairs of walking legs (2 A) .....3  
 Four pairs of walking legs (2 B) .....25



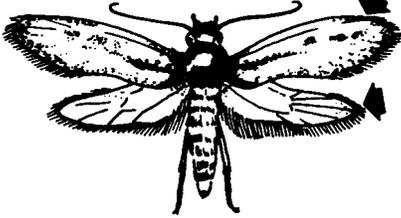
3. Wings present, well developed (3 A) ..... 4  
 Wings absent or rudimentary (3 B & C) ..... 13



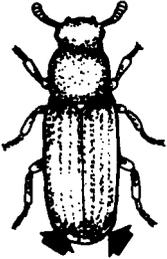
4. With one pair of membranous wings (4 A). ORDER DIPTERA ..... 5  
 With two pairs of wings (4 B & C) ..... 6



4 A

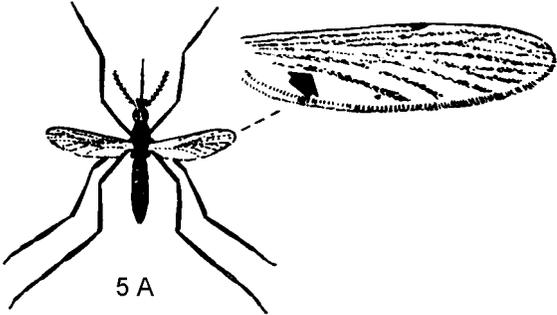


4B

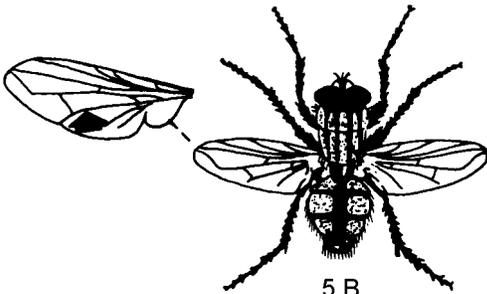


4C

5. Wings with scales (5 A). FAMILY CULICIDAE ..... MOSQUITO  
 Wings without scales (5 B). DIPTERA OTHER THAN MOSQUITOES ..... FLY

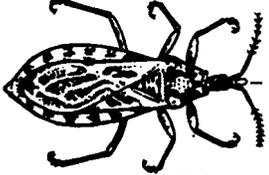


5 A

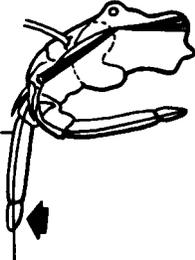


5 B

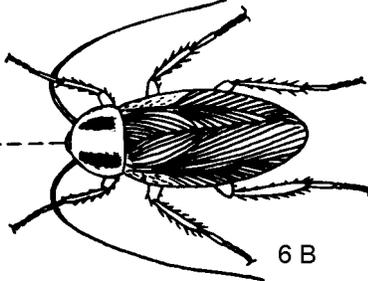
6. Mouthparts adapted for sucking, with elongate proboscis (6 A) ..... 7  
 Mouthparts adapted for chewing, without elongate proboscis (6 B) ..... 9



6 A





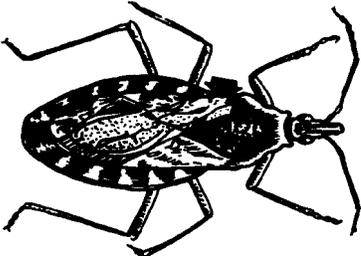


6 B

- 7. Wings densely covered with scales; proboscis coiled (7 A). ORDER LEPIDOPTERA . . . .  
..... MOTH OR BUTTERFLY
- Wings not covered with scales; proboscis not coiled (7 B) ..... 8

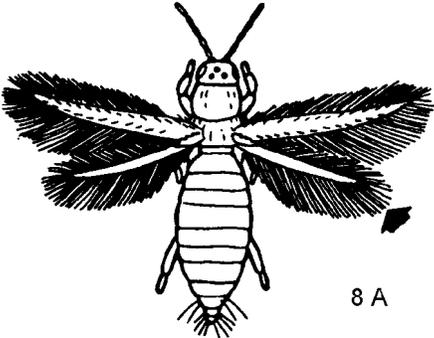


7 A

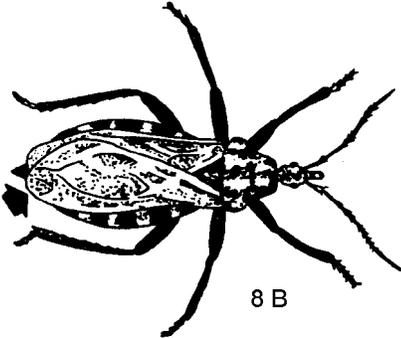


7 B

- 8. Wing with fringe of long hair (8 A). ORDER THYSANOPTERA ..... THRIPS
- Wing without long hair (8 B). ORDER HEMIPTERA ..... KISSING BUG

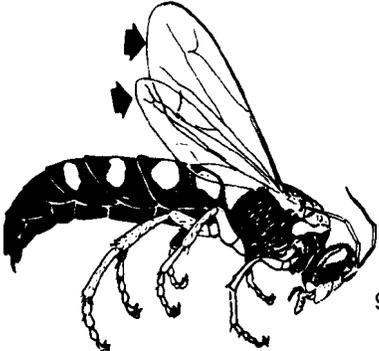


8 A

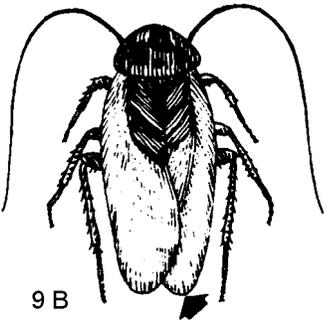


8 B

- 9. Both pair of wings membranous and similar in structure (9 A) ..... 10
- Front pair of wings shell-like or leathery, serving as covers for the second pair (9 B) ... 11

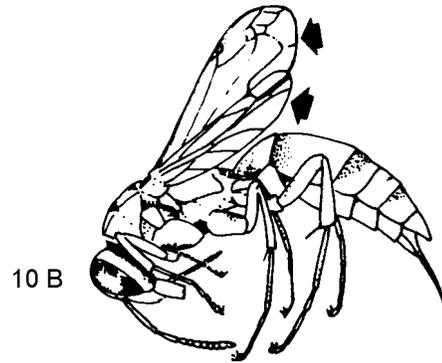
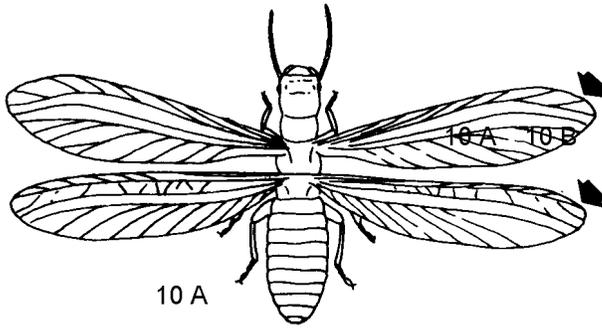


9 A

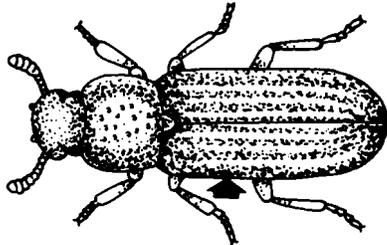


9 B

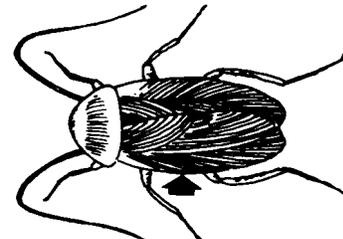
10. Both pairs of wings similar in size (10 A). ORDER ISOPTERA ..... TERMITE  
 Hind wing much smaller than front wing (10 B). ORDER HYMENOPTERA .....  
 ..... BEE, HORNET, WASP, YELLOW JACKET, OR ANT



11. Front wings horny or leathery, without distinct veins (11 A) ..... 12  
 Front wings leathery or paper-like, with distinct veins (11 B). ORDER ORTHOPTERA ....  
 ..... COCKROACH

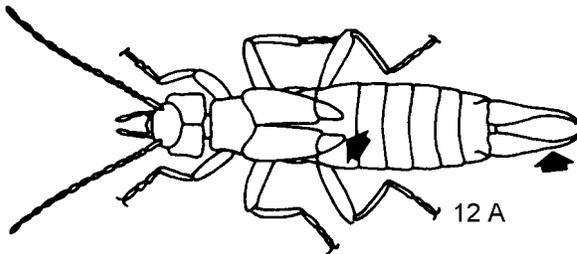


11 A

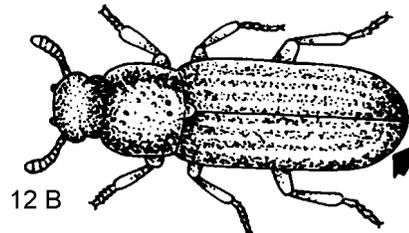


11 B

12. Abdomen with prominent cerci; wings shorter than abdomen (12 A). ORDER DERMAPTERA  
 ..... EARWIG  
 Abdomen without prominent cerci; wings covering abdomen (12 B). ORDER COLEOPTERA  
 ..... BEETLE



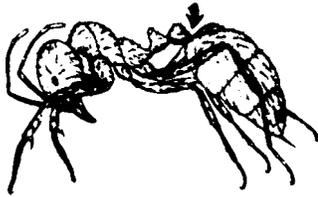
12 A



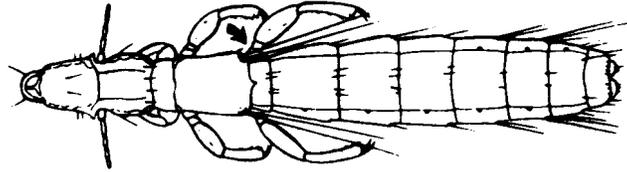
12 B



16. With narrow waist (16 A). ORDER HYMENOPTERA ..... ANT  
 Without narrow waist (16 B) ..... 17



16 A



16 B

17. Antenna with fewer than 8 segments (17 A) ..... 18  
 Antenna with more than 8 segments (17 B) ..... 19

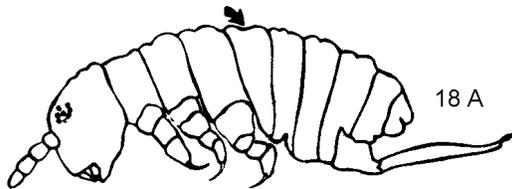


17 A

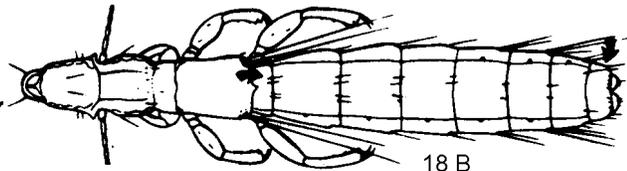


17 B

18. Abdomen with 6 or fewer segments (18 A). ORDER COLLEMBOLA ..... SPRINGTAIL  
 Abdomen with more than 6 segments (18 B). ORDER MALLOPHAGA ..... CHEWING LOUSE



18 A

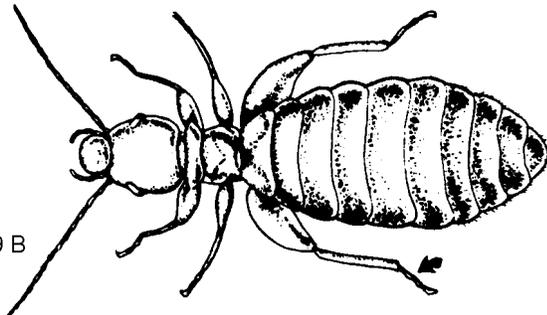


18 B

19. Tarsus with 4-5 segments (19 A) ..... 20  
 Tarsus with 1-3 segments (19 B). ORDER PSOCOPTERA ..... BOOK LOUSE OR PSOCID

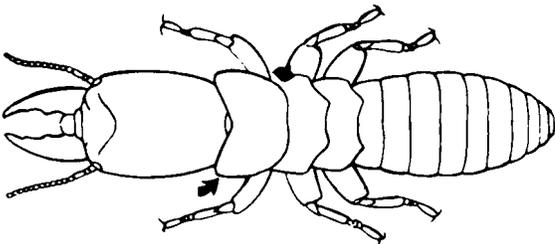


19 A

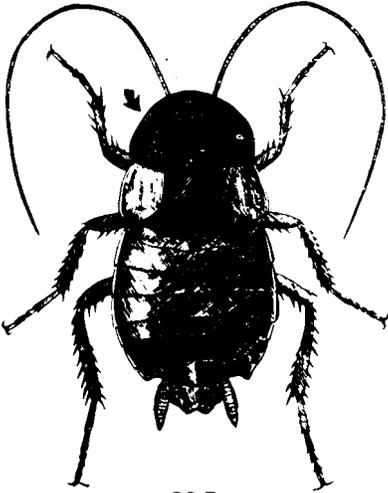


19 B

20. Pronotum narrower than head, never covering head (20 A). ORDER ISOPTERA . . . . .TERMITE  
 Pronotum broader than head, often covering head (20 B). ORDER ORTHOPTERA . . . . .  
 . . . . . COCKROACH

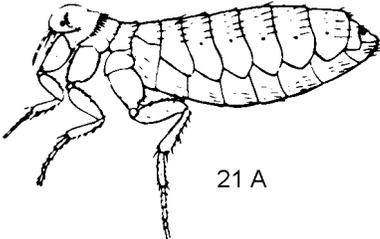


20 A

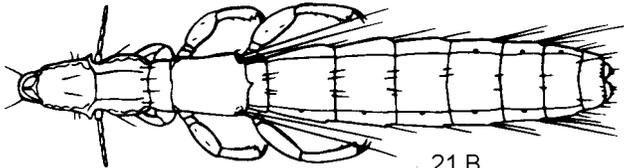


20 B

21. Flattened laterally (21 A). ORDER SIPHONAPTERA . . . . . FLEA  
 Flattened dorso-ventrally (21 B) . . . . . 22

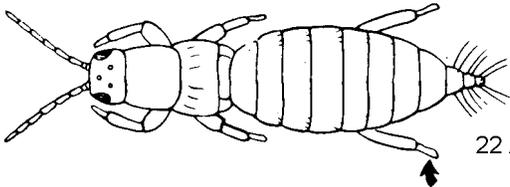


21 A

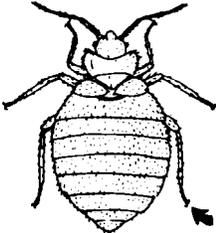


21 B

22. Foot terminating in protrusible bladder (22 A). ORDER THYSANOPTERA . . . . . THRIPS  
 Foot not terminating in protrusible bladder (22 B) . . . . . 23

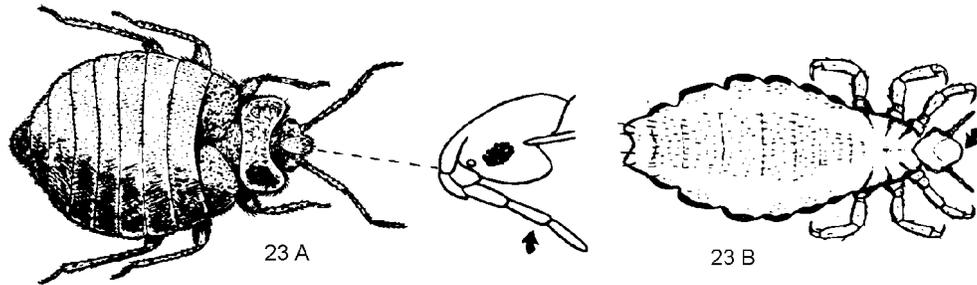


22 A

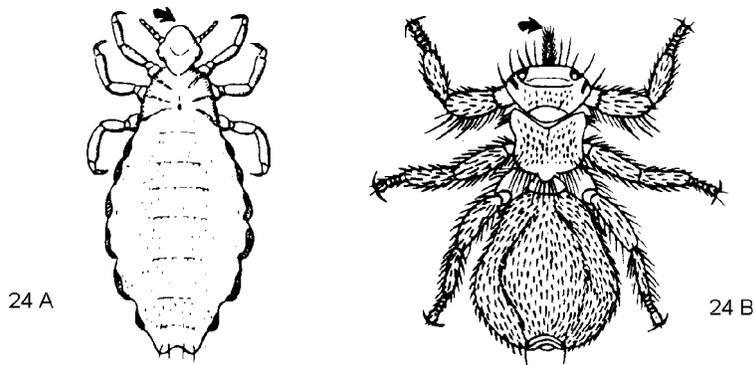


22 B

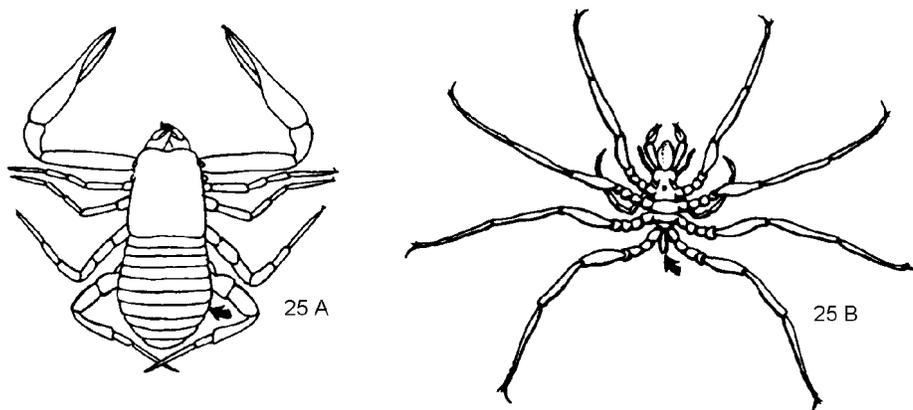
23. Beak jointed (23 A). ORDER HEMIPTERA . . . . .BEDBUG  
 Beak not jointed (23 B) . . . . . 24



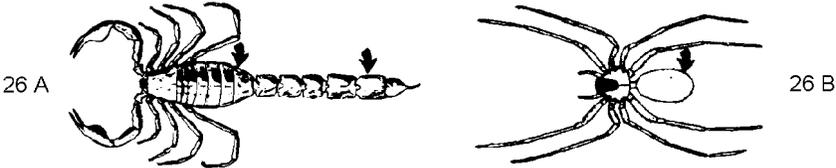
24. Mouthparts retracted into head (24 A). ORDER ANOPLURA . . . . . SUCKING LOUSE  
 Mouthparts not retracted into head (24 B). ORDER DIPTERA . . . . . KED OR LOUSE FLY



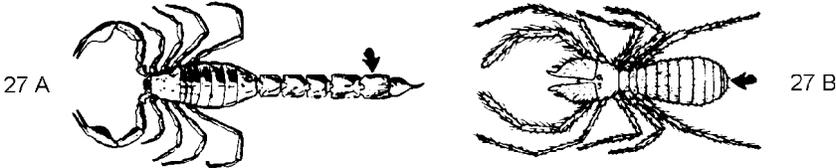
25. Abdomen well-developed (25 A). CLASS ARACHNIDA . . . . . 26  
 Abdomen peg-like (25 B). CLASS PYCNOGONIDA . . . . .SEA SPIDER



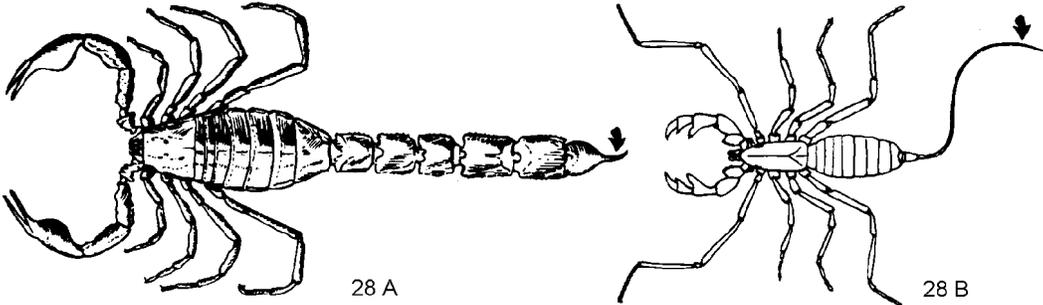
- 26. Abdomen distinctly segmented (26 A) . . . . . 27
- Abdomen not distinctly segmented (26 B) . . . . . 31



- 27. Abdomen lengthened to form a long tail (27 A) . . . . . 28
- Abdomen not lengthened to form a long tail (27 B) . . . . . 29



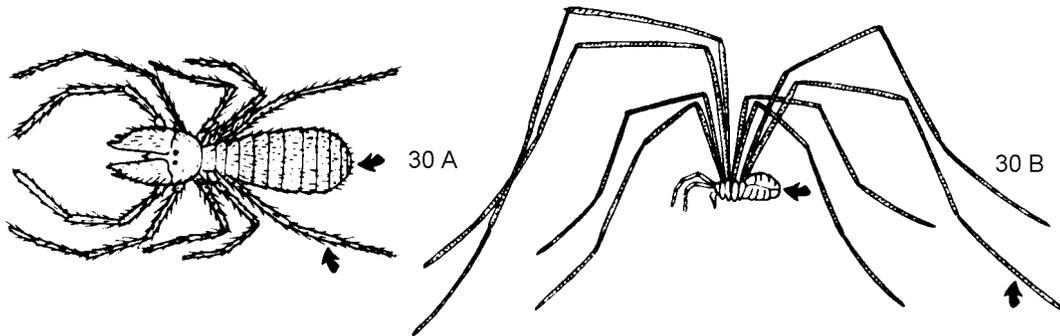
- 28. Tail with stinger (28 A). ORDER SCORPIONIDA . . . . . SCORPION
- Tail without stinger (28 B). ORDER PEDIPALPIDA . . . . . WHIP SCORPION



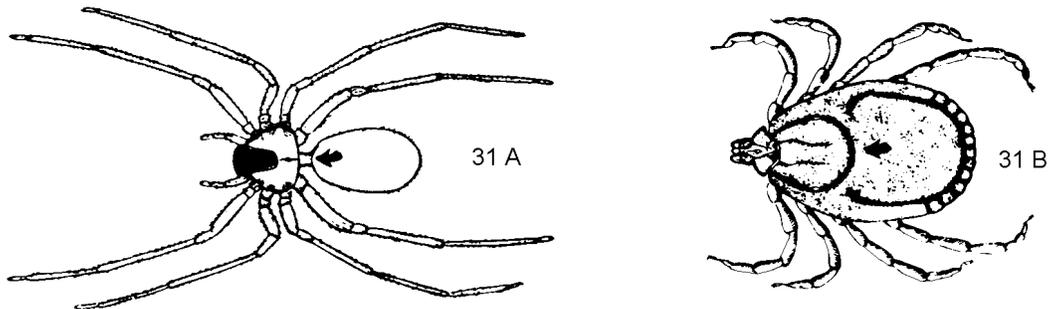
- 29. With large pincer-like claws (29 A). ORDER PSEUDOSCORPIONIDA . . . PSEUDOSCORPION
- Without large pincer-like claws (29 B) . . . . . 30



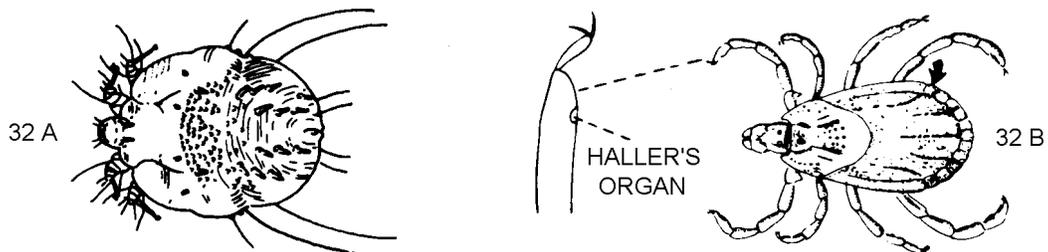
30. Legs not longer than body (30 A). ORDER SOLPUGIDA ..... SUN SPIDER  
 Legs much longer than body (30 B). ORDER PHALANGIDA ..... DADDY LONG-LEG SPIDER



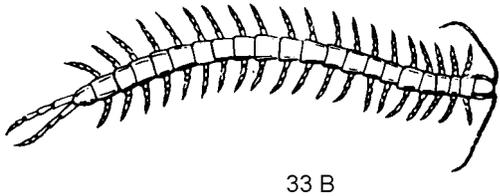
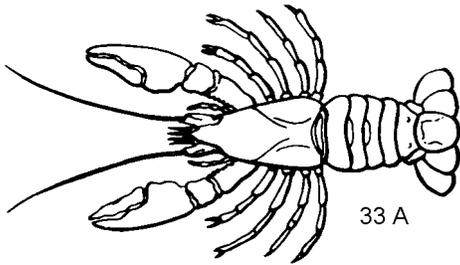
31. Abdomen constricted to form a narrow waist (31 A). ORDER ARANEIDA ..... SPIDER  
 Abdomen not constricted (31 B) ..... 32



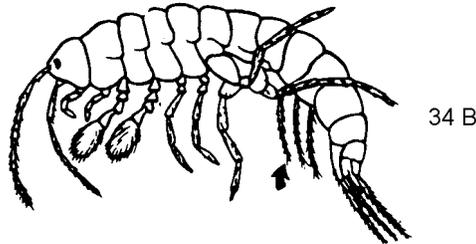
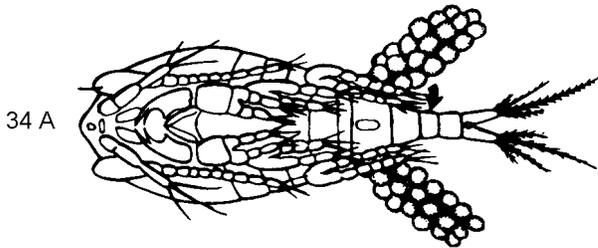
32. Body with long hair; Haller's organ absent (32 A). ORDER ACARINA ..... MITE  
 Body without hair or short hair; Haller's organ present (32 B). ORDER ACARINA ..... TICK



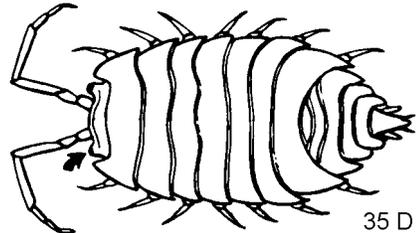
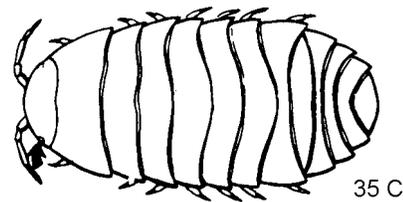
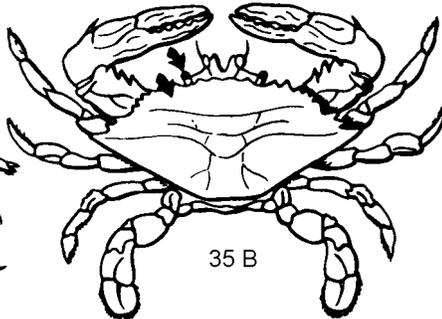
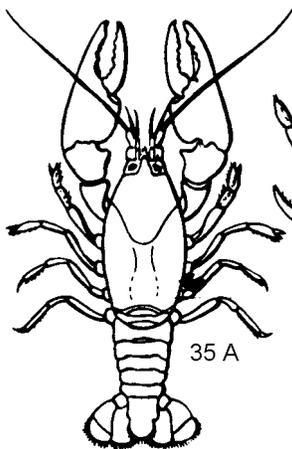
- 33. Five to 7 pairs of walking legs (33 A). CLASS CRUSTACEA ..... 34
- More than 14 pairs of walking legs (33 B) ..... 36



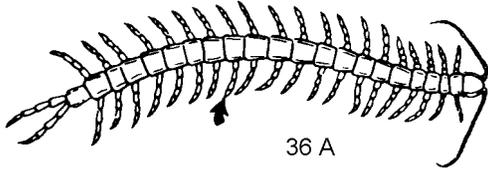
- 34. Abdomen without appendages (34 A). ORDER COPEPODA ..... COPEPOD
- Abdomen with appendages (34 B) ..... 35



- 35. Thorax covered with a fused plate; eyes, when present, on movable stalks (35 A & B) ..... ORDER DECAPODA ..... LOBSTER, CRAB, CRAYFISH, SHRIMP, ETC.
- Thorax not covered with a fused plate; eyes, when present, not on movable stalks (35 C & D) ..... ORDER ISOPODA ..... SOWBUG, PILLBUG

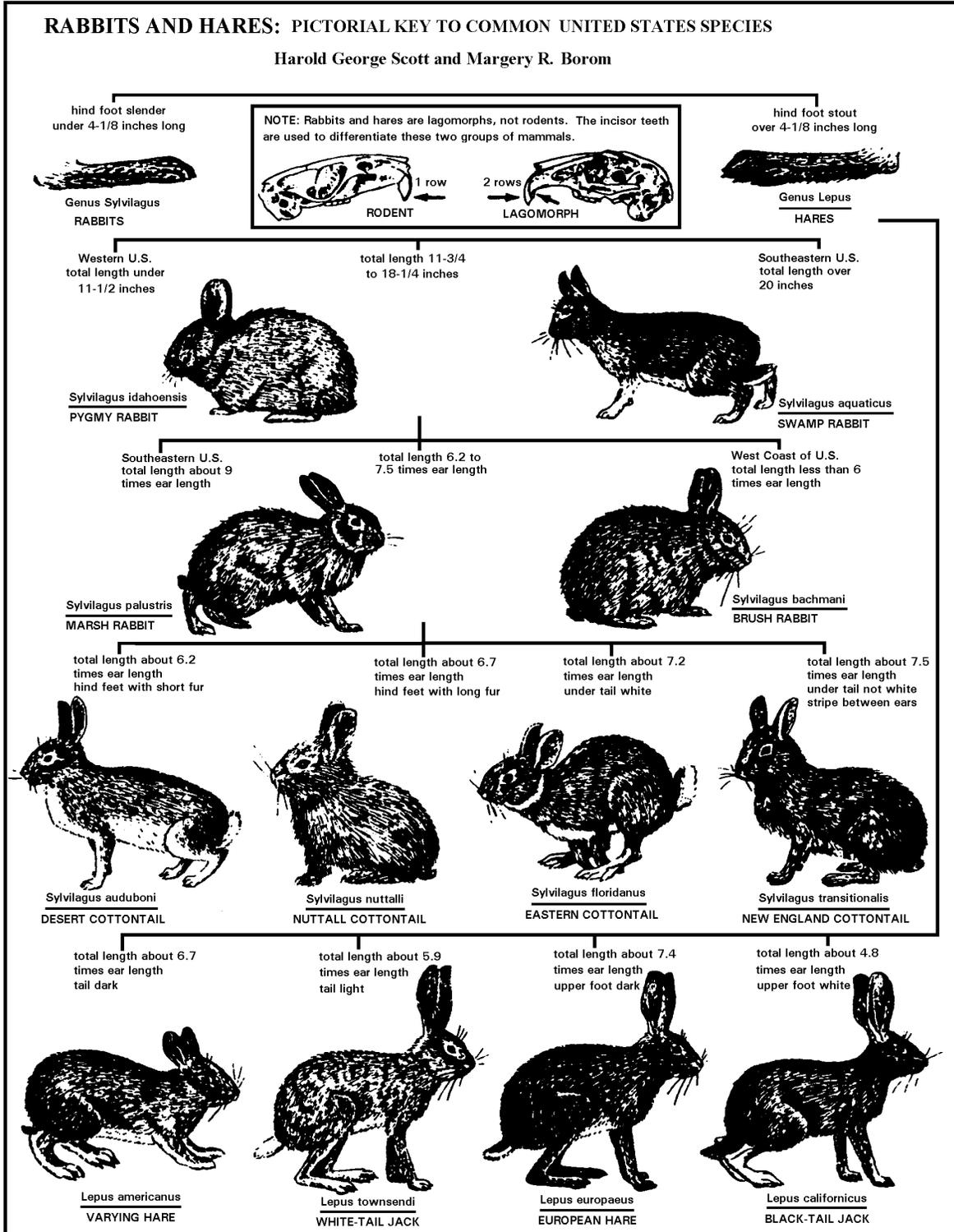


36. One pair of legs per body segment (36 A). CLASS CHILOPODA .....CENTIPEDE  
Two pairs of legs per body segment (36 B). CLASS DIPLOPODA ..... MILLIPEDE



36 A

36 B



<b>Key to Common Rodents of the United States</b> <i>Common Characteristic</i> Hind legs two or more times longer than front legs	
<p>1. Tail with definite brush of hair on tip; animal has external cheek pouches.</p> <p>a. White markings on head.  <b>Kangaroo rat (<i>Dipodomys</i>)</b></p> <p>b. No white markings on head.  <b>Pocket mouse (<i>Perognathus</i>)</b></p> <p>2. Tail without definite brush at tip.</p> <p>a. Tail (bones) longer than one-half body and head length.</p> <p>(1) Head short and thick; neck not evident.                      (a) Head short and thick; neck not evident.  <b>Cotton rat (<i>Sigmodon</i>)</b>                      (b) Head long and slender; neck evident.  <b>Domestic rats (<i>Rattus</i>)</b></p> <p>1. Tail shorter than head and body; ears small.  <b>(<i>Rattus norvegicus</i>)</b></p> <p>2. Tail longer than head and body; ears large and prominent.  <b>(<i>Rattus rattus</i>)</b></p> <p>(2) Tail without scaly rings.</p> <p>(a) Half of tail nearest body is slender and round.</p> <p>1. Whiskers reach to or beyond base of front leg.  <b>Wood rat (<i>Neotoma</i>)</b></p> <p>2. Whiskers do not reach to base of front leg.</p> <p>a. Body uniform in color, back and belly.                      (1) Upper front teeth grooved.  <b>Harvest mouse (<i>Reithrodontomys</i>)</b>                      (2) Upper front teeth not grooved.  <b>House mouse (<i>Mus</i>)</b></p> <p>b. Back of body and tail dark; belly and under tail light or white.  <b>Deer mouse (<i>Peromyscus</i>)</b></p>	<p>(b) Half of tail nearest body not slender or rounded (brushy or fluffy).</p> <p>1. Whiskers reach to front leg.                      a. Tail as long as head and body.  <b>Tree Squirrel (<i>Sciurus</i>)</b>                      b. Tail shorter than head and body.  <b>Wood rat (<i>Neotoma</i>)</b></p> <p>2. Whiskers do not reach to front leg.                      a. Stripes on cheeks.  <b>Chipmunks (<i>Eutamia</i>)</b>                      b. No stripes on cheeks.  <b>Ground squirrels (<i>Citellus</i>)</b></p> <p>b. Tail (bones) length equal to or less than one-half that of head and body.</p> <p>(1) Tail slender and pointed (fine hairs).</p> <p>(a) Claws on front feet longer than on hind feet.</p> <p>1. Grooved upper front teeth.  <b>Gopher (<i>Geomys</i>)</b>                      2. No grooves on upper front teeth.  <b>Gopher (<i>Thomomys</i>)</b></p> <p>(b) Claws on front and back feet about equal length.</p> <p>1. Tail with white tip.  <b>Grasshopper mouse (<i>Onychomys</i>)</b>                      2. Tail without white tip.  <b>Meadow mouse (<i>Microtus</i>)</b></p> <p>(2) Tail hairy, not slender and pointed, fluffy or brush-like arrangement of hair.</p> <p>(a) Crown of head dark or black with or without a few white hairs.  <b>Marmots (<i>Marmota</i>)</b></p> <p>(b) Crown of head same color as back.</p> <p>1. Back tan or light brown color; hair lies close to body (like that of a short-haired dog).  <b>Prairie dog (<i>Cynomys</i>)</b>                      2. Back dark brown or gray; hair soft, like fur.  <b>Ground squirrel (<i>Citellus</i>)</b></p>

## GLOSSARY

**ACCP** The Army Correspondence Course Program

**ANSI** American National Standards Institute

### **Army Training and Evaluation Program (ARTEP)**

The Army's collective training program that establishes unit training objectives critical to unit survival and performance in combat. They combine the training and the evaluation process into one integrated function. The ARTEP is a training program and not a test. The sole purpose of external evaluation under this program is to diagnose unit requirements for future training.

### **Battle focus**

A process to guide the planning, execution, and assessment of the organization's training program to ensure they train as they are going to fight.

**BOD** biochemical oxygen demand

**C** Celsius

**CDC** Centers for Disease Control

**CHPPM** Center for Health Promotion and Preventive Medicine

### **Collective training**

Training, either in institutions or units, that prepares cohesive teams and units to accomplish their missions on the battlefield and in operations other than war.

### **Common task**

A critical task that is performed by every soldier in a specific skill level regardless of MOS.

**CPR** cardiopulmonary resuscitation

### **Critical task**

A collective or individual task determined to be essential to wartime mission, duty accomplishment, or survivability. Critical individual tasks are trained in the training base and/or unit, and they are reinforced in the unit.

### **Cross training**

The systematic training of soldiers on tasks related to another duty position.

**CTA** common table of allowances

## **STP 8-91S15-SM-TG**

**CW** chemical warfare

**DA** Department of the Army

**dB** decibel

**DEH** Directorate of Engineering and Housing

**DO** dissolved oxygen

**DOD** Department of Defense

**DPCA** Director for Personnel and Community Activities

### **Drill**

A disciplined, repetitious exercise to teach and perfect a skill or procedure. Some examples are fire, man overboard, abandon ship, lifeboat, and damage control drills on Army watercraft.

**EPA** Environmental Protection Agency

**F** Fahrenheit

**FAC** free available chlorine

**IAW** in accordance with

**IMA** installation medical authority

### **Individual training**

Training which prepares the soldier to perform specified duties or tasks related to assigned duty position or subsequent duty positions and skill level.

### **Integration training**

The completion of initial entry training in skill level 1 tasks for an individual newly arrived in a unit, but limited specifically to tasks associated with the mission, organization, and equipment of the unit to which the individual is assigned. It may be conducted by the unit using training materials supplied by the school, by troop schools, or by inservice or contract mobile training teams. In all cases, this training is supported by the school proponent.

### **Merger training**

Training that prepares noncommissioned officers to supervise one or more different military occupational specialties at lower skill levels when they advance to a higher skill level in their career management field.

**Mission essential task list (METL)**

A compilation of collective mission essential tasks which must be successfully performed if an organization is to accomplish its wartime mission(s).

**ml** milliliter

**MOPP** mission oriented protective posture

**MOS** military occupational specialty

**MOSC** military occupational specialty code

**MRE** meal, ready to eat

**MTF** medical treatment facility

**MTOE** modification table of organization and equipment

**NBC** nuclear, biological, chemical

**NCO** noncommissioned officer

**NIOSH** National Institute for Occupational Safety and Health

**NSF** National Sanitation Foundation

**NSN** national stock number

**pH** symbol relating the hydrogen concentration to that of a given standard solution

**PHF** potentially hazardous food

**PMCS** preventive maintenance checks and services

**POL** petroleum, oils, and lubricants

**ppm** parts per million

**PVNTMED** preventive medicine

**ROWPU** reverse osmosis water purification unit

**RPP** reduced pressure principle

## **STP 8-91S15-SM-TG**

**SCR** sanitary compliance rating

### **Self-Development**

Self-development is a planned, progressive, and sequential program followed by leaders to enhance and sustain their military competencies. Self-development consists of individual study, research, professional reading, practice, and self-assessment.

**SL** skill level

**SM** soldier's manual

**SMCT** Soldier's Manual of Common Tasks

**SOP** standing operating procedure

**sq ft** square feet

### **Sustainment training**

The provision of training to maintain the minimum acceptable level of proficiency required to accomplish a critical task.

**TDS** total dissolved solids

**TG** trainer's guide

### **Train-up**

The process of increasing the skills and knowledge of an individual to a higher skill level in the appropriate MOS. It may involve certification.

**TWDS** tactical water distribution system

### **Unit training**

Training (individual, collective, and joint or combined) conducted in a unit.

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

**WBGT** wet bulb globe temperature

**WQAS-E** water quality analysis set - engineer

## REFERENCES

### Required Publications

Required publications are sources that users must read in order to understand or to comply with this publication.

#### Army Regulations

AR 40-5	Preventive Medicine
AR 420-47	Solid and Hazardous Waste Management

#### Code of Federal Regulations

40 CFR 265 App III	EPA Interim Primary Drinking Water Standards
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#### Department of Army Pamphlets

DA Pam 40-501	Hearing Conservation
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#### Field Manuals

FM 10-52	Water Supply in Theaters of Operations
FM 10-52-1	Water Supply Point Equipment and Operations
FM 21-10	Field Hygiene and Sanitation
FM 21-10-1	Unit Field Sanitation Team

#### Military Standards

MIL-STD-906	Sanitary Standards for Ice Plants
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#### Technical Bulletins Medical

TB Med 81	Cold Injury
TB Med 507	Occupational and Environmental Health: Prevention, Treatment, and Control of Heat Injury
TB Med 530	Occupational and Environmental Health: Food Service Sanitation
TB Med 575	Occupational and Environmental Health: Swimming Pools and Bathing Facilities
TB Med 577	Occupational and Environmental Health: Sanitary Control and Surveillance of Field Water Supplies

#### Technical Guides (USACHPPM)

TG 022	Industrial Hygiene Evaluation Guide
TG 040	Noise Hazard Evaluation - Sound Level Data of Noise Sources
TG 041	Personal Hearing Protective Devices - Fitting, Care, and Use
TG 177	Commander's Guide to Infectious Waste Management at Army Health Care Facilities

## STP 8-91S15-SM-TG

### Technical Manuals

TM 3-6665-319-10	Operator's Manual for Water Testing Kit, Chemical Agents: M272
TM 5-632	Military Entomology Operational Handbook
TM 5-6630-215-12	Operator's and Organizational Maintenance Manual for Water Quality Analysis Sets: Preventive Medicine (NSN 6630-00-140-7826), Engineer (NSN 6630-00-140-7820)

### Other Product Types

Ventilation Manual NIOSH Pub 77-173	Industrial Ventilation: A Manual of Recommended Practice (ACGIH) Occupational Exposure Sampling Strategy Manual (National Institute for Occupational Safety and Health)
Threshold Limit Values	Documentation of the Threshold Limit Values and Biological Exposure Indices (ACGIH)

### Centers for Disease Control Forms

CDC Form 52.13	Investigation of a Foodborne Outbreak
CDC Form 73.2936S	Field Record

### Center for Health Promotion and Preventive Medicine Forms

CHPPM Form 9-R-E	Industrial Hygiene Air Sample Data
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### Department of Army Forms

DA Form 5402-R	Barber/Beauty Shop Inspection
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### Department of Defense Forms

DD Form 686	Fluoride/Bacteriological Examination of Water
DD Form 710	Physical and Chemical Analysis of Water
DD Form 1532	Pest Management Report
DD Form 2214	Noise Survey

### Related Publications

Related publications are sources of additional information. They are not required in order to understand this publication.

### Army Regulations

AR 40-3	Medical, Dental, and Veterinary Care
AR 40-14	Occupational Ionizing Radiation Personnel Dosimetry
AR 210-50	Housing Management

### Army Training and Evaluation Programs

ARTEP 8-057-30-MTP	Mission Training Plan for the Medical Company, Main Support Battalion, Heavy Division
ARTEP 8-267-30-MTP	Mission Training Plan for the Medical Company, Main Support Battalion, Airborne/Air Assault, and Light Infantry Division

ARTEP 8-437-30-MTP	Mission Training Plan for the Medical Company, Support Battalion, Heavy Separate Brigade/Separate Infantry Brigade, and Medical Troop, Support Squadron, Armored Cavalry Regiment
ARTEP 8-456-MTP	Mission Training Plan for the Headquarters, Area Support Medical Battalion
ARTEP 8-498-30-MTP	Mission Training Plan for the Medical Detachment, Preventive Medicine (Entomology) and Medical Detachment, Preventive Medicine (Sanitation)
ARTEP 8-611-MTP	Mission Training Plan for the Headquarters, Medical Command
ARTEP 8-657-30-MTP	Mission Training Plan for the Theater Army Medical Laboratory

**Department of Army Pamphlets**

DA Pam 40-18	Personnel Dosimetry Guidance and Dose Recording Procedures for Personnel Occupationally Exposed to Ionizing Radiation
DA Pam 351-20	Army Correspondence Course Program Catalog

**DOD Regulations**

DOD 4270.1-M	Construction Criteria Manual
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**Field Manuals**

FM 8-33	Control of Communicable Diseases Manual
FM 8-34	Food Sanitation for the Supervisor
FM 8-250	Preventive Medicine Specialist
FM 10-23	Basic Doctrine for Army Field Feeding and Class I Operations Management
FM 25-100	Training the Force
FM 25-101	Battle Focused Training

**Soldier's Training Publications**

STP 21-1-SMCT	Soldier's Manual of Common Tasks (Skill Level 1)
STP 21-24-SMCT	Soldier's Manual of Common Tasks (Skill Levels 2-4)

**Technical Bulletins Medical**

TB Med 523	Control of Hazards to Health from Microwave and Radio Frequency Radiation and Ultrasound
TB Med 576	Occupational and Environmental Health: Sanitary Control and Surveillance of Water Supplies at Fixed Installations

**Technical Guides (USACHPPM)**

TG 141	Industrial Hygiene Air Sampling and Bulk Sampling Instructions
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**Technical Manuals**

TM 5-662	Swimming Pool Operations and Maintenance
TM 5-810-1	Mechanical Design Heating, Ventilating, and Air Conditioning
TM 5-810-5	Plumbing

## STP 8-91S15-SM-TG

TM 9-2330-213-14&P	Operator's, Unit, Direct Support and General Support Maintenance (Including Repair Parts and Special Tool Lists) for Trailer, Chassis: 1 ½-Ton, 2-Wheel, M103A1 (NSN 2330-00-835-8629), M103A3 (2330-00-141-8052), and Trailer, Cargo: 1 ½-Ton, 2-Wheel, M105A1 (2330-00-835-8631), M105A2 (2330-00-141-8550), M105A2C (2330-00-542-5689); Trailer, Tank, Water: 1 ½-Ton, 2-Wheel, 400 Gallon, M107A1 (2330-00-835-8633), M107A2 (2330-00-141-8049), M107A2C (2330-00-542-5688); Trailer, Van, Shop: Folding Sides, 1 ½-Ton, 2-Wheel, M448 (2330-00-631-5692)
TM 9-2330-267-14&P	Operator's, Organizational, Direct Support, and General Support Maintenance Manual for Trailer, Tank, Potable Water, 400 Gallons, 1½-Ton, 2 Wheel, M149, M149A1, M149A2

### Other Product Types

Water Examination Methods Standard Methods for the Examination of Water and Wastewater (APHA)

### Department of Army Forms

DA Form 1712-R	Water Reconnaissance Report
DA Form 1713-R	Daily Water Production Log - ROWPU
DA Form 1714-R	Daily Water Issue Log
DA Form 2028	Recommended Changes to Publications and Blank Forms

### Department of Army Labels

DA Label 178	Leftover - Use Within 24 Hours
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**STP 8-91S15-SM-TG  
28 OCTOBER 1997**

By Order of the Secretary of the Army:

Official:

  
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