

Deployment Environmental Surveillance Treated Water Kit Instruction Manual



TG 329a
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U.S. ARMY PUBLIC HEALTH COMMAND
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TABLE OF CONTENTS

CHAPTER 1. INTRODUCTION	Page #
1.1 PURPOSE.....	1
1.2 REFERENCES.....	1
1.3 EXPLANATION OF ACRONYMS AND ABBREVIATIONS	1
1.4 BACKGROUND AND SCOPE	1
CHAPTER 2. TREATED WATER KIT (TWK) CONTENTS AND USAGE	
2.1 SAMPLING EQUIPMENT	2
2.2 TWK TESTING CAPABILITIES	2
2.3 FIELD DATA SHEET	3
CHAPTER 3. SAMPLE COLLECTION PROCEDURES	
3.1 IDENTIFY REASON FOR SAMPLING AND SAMPLE COLLECTION POINT.....	6
3.2 INVENTORY AND INSPECTION	6
3.3 PRE SAMPLE COLLECTION ACTIVITIES	8
3.4 SAMPLE COLLECTION ACTIVITIES.....	8
3.5 WATER QUALITY FIELD TESTS.....	12
3.6 POST SAMPLE COLLECTION ACTIVITIES.....	13
3.7 PACKAGING AND SHIPPING SAMPLES.....	13
CHAPTER 4. ADDITIONAL INFORMATION.	
4.1 DEPLOYMENT ENVIRONMENTAL SURVEILLANCE PROGRAM (DESP) CONTACT INFORMATION	15
4.2 DESP WEBSITE	15
APPENDIX A REFERENCES.....	16
APPENDIX B EXPLANATION OF ACRONYMS AND ABBREVIATIONS	17

List of Figures

1. Deployment Treated Water Sampling Kit.....	2
2. Sample Container Layout Diagram	2
3. Treated Water Sampling Blank with Blank Creation Date Identified	7
4. Example of Removing Containers from Foam Insert.....	9
5. Filling Containers Using Supplied Pitcher.....	9
6. Filling Containers Directly From Water Source.....	10
7. Example of Bottle Where Reverse Meniscus is Formed	11
8. Example of Container with Air Bubbles or Headspace.	11
9. Example of Container without Air Bubbles or Headspace.	12
10. Example of pH or Chlorine Test Strips.....	12

1 CHAPTER 1: INTRODUCTION

1.1 PURPOSE.

Treated water samples are collected to document the conditions of the water supply deployed U.S. personnel are exposed to and meet deployment occupational and environmental health surveillance (DOEHS) and occupational environmental health site assessment (OEHSA) requirements as part of a Comprehensive Military Medical Surveillance Program, required by Department of Defense Directive 6490.02E and Department of Defense Instruction 6490.03. Technical Bulletin Medical (TB MED) 577 should be used in conjunction with the treated water kits (TWK) to determine sampling frequency, whether the water supply meets military field water standards (MFWS) and other procedures related to water system inspections.

1.2 REFERENCES.

Required and related publications are listed in Appendix A.

1.3 EXPLANATION OF ACRONYMS AND ABBREVIATIONS.

Acronyms and abbreviations used in this technical guide (TG) are explained in Appendix B.

1.4 BACKGROUND AND SCOPE.

The U.S. Army Public Health Command (USAPHC) TWKs were developed for use during deployments. They were designed as reduced volume, field-expedient, screening tools for Preventive Medicine personnel to collect and submit water samples for advanced water testing (AWT). The kits are specifically designed for sampling treated water sources (to include host nation municipal water or bottled water) in support of DOEHS and OEHSA requirements. See Sections 2.2.3 and 2.2.4 for a list of approved TWK water sample sources and collection points. The TWKs contain appropriately prepared and pre-preserved small sample containers used to collect treated water samples for laboratory analysis of the water for the MFWS and some of the military exposure guideline parameters. They were specifically designed to accommodate military logistical requirements by minimizing volume and weight. The reduced kit size and sample volume also reduce the levels of quality assurance and quality control measures employed, resulting in somewhat less confidence in the analyses than if full volume samples were collected.

The USAPHC at Aberdeen Proving Ground, Maryland and the Public Health Command Region (PHCR)-Europe provide TWKs to requesting units. The TWKs may be returned to either the laboratory at APG, MD or PHCR-Europe, Landstuhl, Germany for laboratory analysis.

2 CHAPTER 2: TREATED WATER KIT CONTENTS AND USAGE

2.1 SAMPLING EQUIPMENT.

2.1.1 TWK Contents.

The TWK contains 23 pre-preserved sample containers, one blank container, one vial of hydrochloric acid (HCL), packing material, associated sample collection items (pipettes, pitcher, gloves and wipes), field data sheet (FDS) and a sample container layout diagram with container filling requirements. **[Figure 1]** and **[Figure 2]** show the sample container layout diagram of a deployment treated water sampling kit. All containers and associated sample collection items are new, and should be used only once.



Figure 1. Deployment Treated Water Sampling Kit

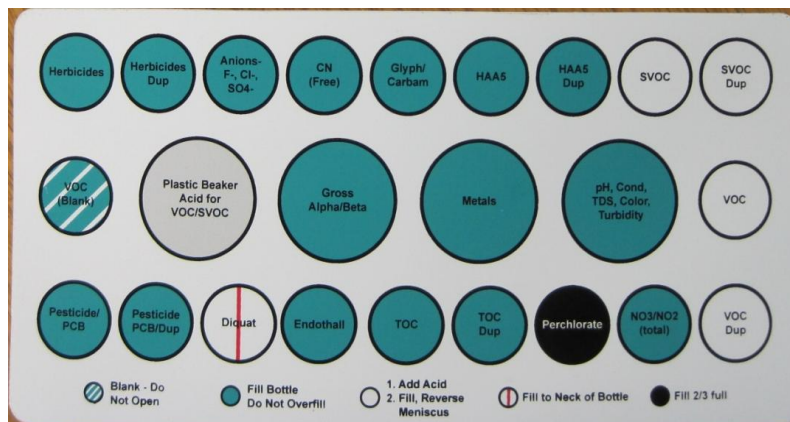


Figure 2. Sample Container Layout Diagram

2.1.2 Supplemental TWK Items Provided in the DOEHS Backpack.

The following supplemental items are provided in the DOEHS backpack and can be used with the treated water sampling kit: permanent ink pen, chlorine test strips, pH test strips, additional gloves, additional wipes, 100 milliliter (mL) pitcher, and emergency eye wash. The TWK is not a component of the DOEHS backpack and must be requested separately. The DOEHS backpack is not required to take treated water samples. The supplemental items from the DOEHS backpack can be ordered separately to be used with the TWK without ordering the entire DOEHS backpack or to resupply missing or used items in your DOEHS backpack. To order the DOEHS backpack or supplemental items contained in the DOEHS backpack, personnel should e-mail phc-desp-request@amedd.army.mil.

2.1.3 Packaging of TWK.

The TWK is shipped in a cooler with ice packs. Multiple TWKs may be packed in the same cooler. If special packaging is required, please indicate specific shipping requirements in the request for equipment.

2.2 TWK TESTING CAPABILITIES.

2.2.1 TWK Sample Capacity.

The TWK was designed to collect a treated water sample from one treated water source at one sample collection point. If the collection of multiple samples is required from multiple treated water sources, multiple sample collection points, or from the same sample collection point; the collector is required to have an equal number of TWKs to the number of samples required for collection.

If additional TWKs are needed, contact your Deployment Environmental Surveillance Program (DESP) point of contact (POC) or place a request using the following email address: phc-desp-request@amedd.army.mil. If time constraints exist due to mission parameters and normal shipping times are not feasible, contact your DESP POC to discuss alternate sampling solutions.

If a unit's on-hand number of TWKs is limited and required sampling points include bottled water samples, the collecting unit may send back 1.5 liters of water from each brand of bottled water required to be sampled in lieu of filling a TWK. **DO NOT OPEN THE BOTTLES.** The water from the water bottles will be transferred to the appropriate sample containers at the laboratory. A separate FDS is required for each brand of bottled water sample submitted using this method and any sample not sent back for analysis in the TWK.

2.2.2 Laboratory Analysis.

Once sampling is complete, the TWK must be shipped back to a USAPHC laboratory. Laboratory analysis of the sample provided in the TWK includes testing the property/contaminates listed in the TB MED 577, Table 4-4, long-term potability military field and bottled water standards. As noted in TB MED 577, Table 4-4, the following properties/contaminates cannot be analyzed using this kit: bromate, chlorite, asbestos, dioxin, tritium, and combined Ra-226 and Ra-228 activity. Special coordination with a DESP POC is required to obtain the proper sampling media for these analytes.

*Note: The kit is **not** designed to provide laboratory results for microbiological analysis of the water. Microbiological analysis, presence/absence of total coliforms and E. Coli, of the water is to be conducted in the field.*

2.2.3 Appropriate TWK Water Sample Sources.

This kit is designed for collecting samples from treated water sources (military, contractor and/or host nation municipal and treated water supplies), bottled water, packaged water, established well water, and most disinfected fresh water.

If a collecting unit is unsure if the TWK is the appropriate media for the disinfected fresh water supply intended to be sampled, contact a DESP POC prior to initiating sampling.

The TWK is not for use with untreated water samples including but not limited to: ocean, lake, river, stream, cistern, waste, brine, and visibly turbid water.

Do **NOT** use the TWK to collect an unknown liquid sample and submit to the laboratory for analysis. The TWK containers are pre-preserved and may adversely react with the unknown liquid sampled. Contact a DESP POC for additional recommendations for sampling unknown liquid samples.

2.2.4 Appropriate TWK Water Collection Points.

Water collected from the following water collection points are traditionally considered treated and are appropriate for use with the TWK: tap or faucet from a sink or shower such as in the latrine or dining facility, potable water buffalo, water blivet, treatment facility product water, bottled water, municipal, water tanker, and points along the water distribution system.

2.3 FIELD DATA SHEET.

2.3.1 Hard Copy Field Data Sheet (FDS).

The sample collector is responsible for filling out the "Treated Water Sampling Field Data Sheet" included in each TWK. The FDS should be completed and the original returned with the sample in the supplied re-closable 4" x 9" plastic bag. The sample collector should maintain a copy of the FDS in his/her own records for future reference. The front of the FDS should be filled out completely and accurately with as much information as possible regarding the sample and its usage. Detailed instructions are listed on the back side of the FDS which explaining how to fill out the boxes correctly. Additional or replacement FDSs can be downloaded from the Military Exposure Surveillance Library (MESL) under the title of "Downloading Sampling and Survey Forms" located at the bottom of the page.

<https://mesl.apgea.army.mil/mesl/doehrsResources/initialize.do>

2.3.2 Electronic Copy Field Data Sheet.

2.3.2.1 Deployment Occupational and Environmental Health Readiness System-Environmental Health (DOEHRS-EH).

The DOEHRS-EH has a module to electronically capture all information collected on the FDS. The sample collector is encouraged to fill out the electronic version of the FDS in DOEHRS-EH. If the sample collector fills out the FDS in DOEHRS-EH, please print a copy of the FDS with the sample specific information and include it in the TWK when it is returned to the laboratory.

The sample collector will need to obtain a DOEHRS-EH account. Go to the following web address at <https://doehrs-ih.csd.disa.mil/Doehrs> for instructions on how to obtain a DOEHRS-EH account.

2.3.2.2 Other electronic versions

Some sample collectors may use a writable PDF or other document production software program to create an electronic version of the FDS. Please provide a hard copy of the electronic version of the FDS in the TWK when it is returned to the laboratory. The electronic copy of the FDS may also be emailed to the unit's designated DESP POC.

3 CHAPTER 3: SAMPLE COLLECTION PROCEDURES.

3.1 Identify Reason for Sampling and Sample Collection Point.

Deployed military personnel may be exposed to chemicals in drinking water arising from industrial contamination, agriculture use (pesticides and fertilizers), intentional contamination (e.g., terrorist activities), and naturally occurring sources. Compared to the other routes of exposure with treated water, ingestion (or the intake of water by mouth) is the most common route of exposure. Over the past few years, however, there has been an increasing concern that dermal and inhalation exposures resulting from non-drinking use of water sources (i.e., showering, cooking, vehicle washing, water immersion scenarios/training, etc.) are also important.

Identify the reason for collecting the sample. The following are some examples for reasons to collect a sample: sampling general or typical exposure conditions, exposure conditions related to a specific hazard, exposure conditions related to a specific incident, and follow-up sampling.

Based upon the identified reason/s for sampling, determine the appropriate sample collection point.

3.2 Inventory and Inspection.

3.2.1 Inventory.

The TWK should be inspected prior to sampling to ensure its usability. Each TWK should contain:

- (20) glass 40 mL containers
- (3) glass 125 mL containers
- (1) plastic container
- (1) 100 mL pitcher
- (1) vial of Hydrochloric Acid (HCl)
- (1) FDS
- (1) pair of gloves
- (1) wipe
- (1) sample container layout with fill instructions
- (2) pipettes

Each sample container should have a label. The entry in the analysis required field on the sample container label should match the corresponding entry on the sample container layout diagram provided inside each TWK.

If your TWK does not contain the proper inventory, contact your DESP POC immediately to determine if proper sampling can be conducted with the inventory you were provided.

3.2.2 Inspection.

3.2.2.1 Sample Containers.

Each sample container should be removed and inspected for cracked or broken lids and/or cracked or broken glass. If broken sample containers are identified they should be disposed of properly.

If a TWK contains broken or damaged sample containers, contact the DESP POC immediately to determine if proper sampling can be conducted with the inventory of containers you were provided. If the unit's DESP POC is unable to be contacted and sampling efforts must be conducted due to mission constraints, collect the sample and document any defects in the TWK on the accompanying FDS.

3.2.2.2 Blank.

As part of the Quality Control/Quality Assurance (QA/QC) procedures for the laboratory analysis, the volatile organic compound (VOC) blank container is already filled with water from the USAPHC laboratory and included in the TWK. The blank container has a gray cap.

There is a date hand written on the blank sample label as shown in **[Figure 3]**. Check this date. If the blank is 6 months old or older, the TWK has expired and should not be used during sample collection. Return the expired (unused) TWK to USAPHC. Do NOT remove the expired blank container from the TWK. The entire TWK is required to be returned.

DO NOT OPEN THE BLANK AT ANY TIME.

Keep the blank in the TWK with the other sample containers at all times.

Each blank is labeled with a sticker that states "BLANK DO NOT OPEN". If that seal is broken or it appears that the blank has been damaged, contact the unit's DESP POC to determine if the TWK can be used for sampling.

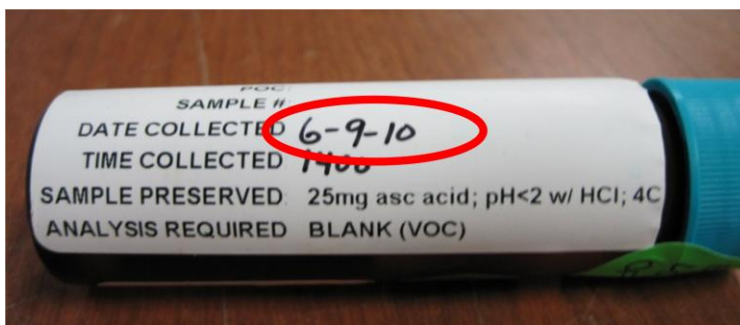


Figure 3. Treated Water Sampling Blank with Blank Creation Date Identified

3.2.2.3 Address Safety Concerns.

Review the Material Safety Data Sheet (MSDS) if provided in the sampling kit. Some sampling kits may not contain acid or corrosive preservatives at a concentration high enough to require an MSDS. If this is the case, no MSDS sheet(s) will be provided. The MSDS will contain Hazardous Ingredients, Physical & Chemical Characteristics, Fire and Explosive Potential, Physical & Health Hazards, Special Precautions and Leak Procedures, Special Protection and Control Measures. Prior to sampling, review the first-aid section of each MSDS

At every sampling site, make an assessment of any safety hazards prior to sample collection. Examples of hazardous conditions that field samplers should consider are exposed electrical wiring, slippery surfaces from standing water, compressed gas cylinders, vapors, tripping hazards, moving machinery, and confined spaces.

Review local safety policies and confined spaces entry procedures if any of these conditions exist at the sampling site. Field samplers should have knowledge of the local safety policies, first aid and accident reporting procedures and emergency contact numbers.

Field samplers should utilize proper personal protective equipment (PPE) when appropriate. Some sample containers may contain wet or dry corrosive preservatives that could cause nausea, headache, or vomiting if inhaled. Ingestion could cause burning of the throat or stomach which could lead to serious illness. Furthermore, skin or eye contact could cause redness, pain, severe burning or blurred vision. Each sampling kit comes with gloves and the DOEHS backpack is equipped with safety goggles. Field Samplers should ensure proper wear of the uniform and use of PPE when appropriate to avoid accidental contact with corrosive materials that may cause injury and/or damage to equipment or uniforms.

After sample collection is complete, properly clean the sampling site with paper towels and dispose of any excess material or preservatives, acid transport tubes, gloves and used paper towels in accordance with local disposal regulations and policy. After all sampling procedures and clean up are completed; make sure that you wash your hands and any clothing that was worn during the sampling collection process because noticing accidental clothing contamination will be difficult.

To prevent accidental exposures, keep the provided cooler sealed with tape and under controlled supervision until the cooler is dropped off at the shipping company for delivery to the USAPHC laboratory.

3.3 Pre-Sample Collection Activities.

3.3.1 Unzip TWK.

3.3.2 Remove FDS from TWK. Record all the sample information on the "Treated Water Sampling FDS" according to the instructions of the back of the FDS.

3.3.3 Remove gloves and wipe cloth from the TWK. Put on gloves.

3.3.4 Remove radionuclide (RAD) plastic bottle, pitcher, HCl vial and pipettes from TWK.

3.3.5 Remove the sample containers from the foam insert one at a time **[Figure 4]**. Write the sample identification number (sample ID), sample date and sample time on all sample containers. All containers will receive the same sample ID, sample date and sample time. The sample ID, sample date and sample time recorded on the sample containers must match the sample ID, sample date and sample time recorded on the FDS. Before replacing the containers in foam insert, wait 1–2 minutes to allow ink to dry after filling out the labels.

3.4 SAMPLE COLLECTION ACTIVITIES.

3.4.1 Fill all empty sample containers one at a time from the same water source at the sample collection point.

3.4.1.1 Fill Perchlorate container two-thirds (2/3) full. Container has a black cap.

3.4.1.2 Fill Diaquat/Paraquat container to neck of bottle ONLY. Bottle will break during shipment if filled with reverse meniscus. Container has a white cap with a red line on it.

3.4.1.3 The VOC, VOC duplicate (DUP), semivolatile organic compound (SVOC) and SVOC DUP must be preserved in the field. Instructions and acid for VOC and SVOC containers are included in the

pitcher along with pipettes. Follow the special instructions for filling the sample containers in section 3.4.6 below. These containers have white caps.

3.4.1.4 All other sample containers are to be filled to the neck of the sample container. The 40-mL containers have teal caps, the 125-mL containers have gray caps, and the RAD container (250 mL) is plastic and not stored within the foam container holder.

3.4.2 Remove container one at a time from foam insert. **[Figure 4]**



Figure 4. Example of Removing Containers from Foam Insert

3.4.3 Carefully unscrew the container cap ensuring the cap is placed in a manner to avoid contamination. While opening sample containers, avoid breathing any preservative fumes that may escape when initially opened.

3.4.4 Fill container slowly to avoid splashing using either the supplied pitcher **[Figure 5]** or directly from the water source **[Figure 6]**.



Figure 5. Filling Containers Using Supplied Pitcher



Figure 6. Filling Containers Directly from Water Source

3.4.5 Fill the container ensuring not to over fill it. Over filling the container will expel required preservative from the container and can invalidate the sample.

3.4.6 Special Sample Container Filling Instructions for the VOC, VOC duplicate (DUP), SVOC and SVOC DUP Containers.

3.4.6.1 These containers must be preserved in the field.

3.4.6.2 Fill container half full.

3.4.6.3 Add 3 drops of HCl acid from the HCl vial using the provided pipette. Change pipettes between filling the VOC and SVOC containers.

3.4.6.4 Replace cap on sample container and gently tighten.

3.4.6.5 Gently turn bottle upside down and then right side up to mix preservative with the sample. Do not shake bottle.

3.4.6.6 Remove cap from sample container.

3.4.6.7 Fill container the rest of way until a reverse meniscus is formed **[Figure 7]**. To get a reverse meniscus without over filling, fill the sample container to just below the container threads, then fill the sample container cap with water being sampled and slowly drip water from the cap to the container until a reverse meniscus is formed.



Figure 7. Example of Bottle Where Reverse Meniscus is formed

3.4.7 Carefully tighten the container cap back on the sample container.

Note: When the bottle is filled to a reverse meniscus, it is normal for some (minimal) sample liquid to be expelled from the container when the cap is tightened.

3.4.8 Invert the sample container several times to allow preservative mixing.

Ensure that **NO** air bubbles remain in the VOC, VOC DUP, SVOC, and SVOC DUP containers. To check this, turn the capped container upside down and tap the side lightly (with the palm of your hand) to force any bubbles to rise. If bubbles are present, remove the cap (do not empty the container) and add enough water to remove the headspace at the top of the container. An example of a container with air bubbles or headspace is shown in **[Figure 8]**. An example of a container with no headspace or air bubbles is shown in **[Figure 9]**.



Figure 8. Example of Container with Air Bubbles or Headspace

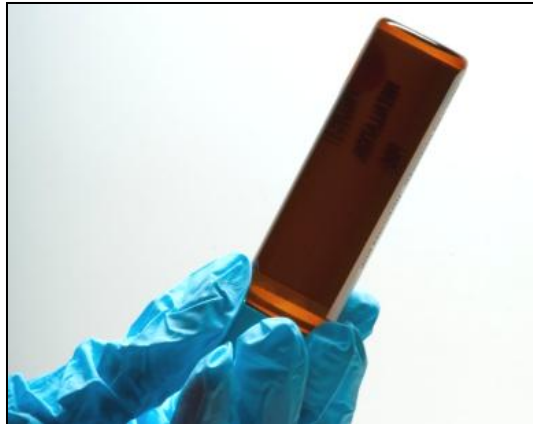


Figure 9. Example of Container without Air Bubbles or Headspace

3.4.9 Dry the sample containers with the provided wipe cloth to prevent contamination of the foam container holder.

3.5 WATER QUALITY FIELD TESTS

Conduct water quality field tests IAW the field water standards and guidelines in TB MED 577, Chapter 4.

Record results of water quality field tests on FDS. If there is not enough space to provide results for all water quality field tests conducted, provide results on a separate piece of paper, in DOEHS-EH, or in an email to the unit's assigned DESP POC.

At a minimum, turbidity, pH, total dissolved solids (TDS), free available chlorine (FAC) and total coliform should be measured in the field at the time the sample is being collected. If this data cannot be collected for any reason, please indicate as "not tested" or "not available" (N/A) for those fields. This will allow for more accurate data interpretation of the FDS. Do not use a "0" zero to indicate test was not done.

The DOEHS Backpack contains pH and chlorine test strips **[Figure 10]**.



Figure 10. Example of pH or Chlorine Test Strips

3.6 Post Sample Collection Activities.

3.6.1 Place completed FDS in plastic bag and place in the TWK.

3.6.2 Zip the TWK closed.

3.6.3 Remove gloves.

3.6.4 Dispose of used gloves, wipes, HCl vial, pipettes, and pitcher appropriately. Disposal requirements may change based on concerns related to quality of water being sampled and should be assessed on a sample by sample basis.

3.6.5 Treated water samples should be stored and kept at 4 degrees Celsius when possible after collection.

3.7 PACKAGING AND SHIPPING SAMPLES.

If shipping multiple TWKs, complete step 3.6.1 on each TWK prior to placing it in the cooler. Multiple TWKs may be shipped in the same cooler or only one per cooler. Do not ship TWKs without placing them in a cooler with cooling material first.

3.7.1 Check completeness of TWK.

3.7.1.1 Ensure all containers are labeled completely and accurately. sample ID, sample date and sample time match entry on associated FDS. All sample containers in TWK have the same sample ID, sample date and sample time.

3.7.1.2 Ensure all caps are securely tightened on each of the sample containers.

3.7.1.3 All glass containers are in the foam insert inside the TWK

3.7.1.4 The plastic RAD bottle is placed in the TWK.

3.7.1.5 All boxes on the FDS are filled out and accurate.

3.7.1.6 Original "Treated Water Sampling Field Data Sheet" is in the original re-closable plastic bag and placed inside the TWK.

3.7.2 Place TWK in cooler.

3.7.3 Place cooling material in cooler with TWK(s). **DO NOT USE DRY ICE.** Cooling material may be any of the following:

- Ice packs.
- Double bagged wet ice.
- Frozen bottled water. Write the following on the bottles:

"NOT A SAMPLE" or
"DO NOT ANALYZE"

3.7.4 Seal and secure cooler with tape.

3.7.5 Choose a method of shipment back to the laboratory for analysis. TWKs may be returned to either the USAPHC laboratory or the PHCR-Europe laboratory regardless of where the TWK originated from. If assistance with the shipment of samples is required, please contact a DESP POC.

3.7.5.1 U.S. Army Public Health Command Laboratory mailing address:

U.S. Army Public Health Command or USAPHC
ATTN: MCHB-IP-LOD (SML)
Sample Management Lab Bldg E2100
5158 Blackhawk Road
APG-Edgewood Area, MD 21010-5403

3.7.5.2 PHCR-Europe Laboratory mailing address:

U.S. Army Public Health Command Region- Europe or PHCR-Europe
Dept of Laboratory Sciences
Customer Services Division
Geb 3809 Raum 110
Kirchberg Kaserne
66849 Landstuhl Germany

3.7.6 All shipments must include the words "MILITARY TO MILITARY SHIPMENT".

3.7.7 If a TWK is being shipped back to the continental United States laboratory, the shipping invoice should state the following:

"THESE ARE GOODS RETURNING TO THE US".

3.7.8 E-mail your DESP POC the following information:

- Number and types of samples shipped
- Number of coolers shipped
- Date shipped
- Carrier used
- Tracking number of shipment

4 Chapter 4: ADDITIONAL INFORMATION.

4.1 DESP Contact Information.

Prior to deployment, units are assigned a POC within the DESP.

If a unit has not been assigned a DESP POC cannot get in contact with the appointed DESP POC, or does not remember the DESP POC contact information, please contact the DESP through one of the following methods:

- E-mail: phc-desp-request@amedd.army.mil
- Phone: 001-410-436-6096
- DSN: 312-584-6096

APPENDIX A REFERENCES

AR 11-35, Deployment Occupational and Environmental Health Risk Management; establishes policies for balancing the operational risk associated with OEH threats during Military operations.

AR 40-5, Preventive Medicine; establishes policies, defines programs, and assigns responsibility for preventive medicine and force health protection.

Department of the Army Pamphlet 40-11, Preventive Medicine; defines programs, services, functions, and procedures for implementing the essential elements of Army preventive medicine.

Department of Defense Directive (DoDD) 6200.04, Force Health Protection; directs the Military Services to ensure that Armed Forces members are physically and mentally capable of accomplishing their missions through health promotion, preventive medicine, and clinical care.

Department of Defense Instruction (DoDI) 6490.03, Deployment Health; directs the Military Services to monitor and prevent Disease and Non-Battle Injury (DNBI); to control or reduce Occupational and Environmental Health (OEH) risks; and to link OEH exposures with the daily location of deployed personnel.

Field Manual 3-0, Operations; describes Force Health Protection (FHP) as a key component of combat power which enables Commanders to accomplish the warfighting functions of Sustainment and Protection.

Field Manual 4-02.17, Preventive Medicine Services; provides information on the mission, organization, and responsibilities for the various PVNTMED support operations.

Presidential Review Directive 5 (PRD-5). Improving the Health of our Military, Veterans, and their Families; directs the Military Services to develop and maintain the capability to collect and assess data associated with actual or anticipated exposures during deployment.

Occupational Health Survey Set, UA 106A (6545-00-949-4000) Information Paper, dated 30 March 2009. Removed the NSN 6640-01-539-3214, Pouch Soil Collection and NSN 6640-01-539-3238, Water Sampling Insert Pouch from the Occupational Health Survey Set and making procurement through USACHPPM Deployment Environmental Surveillance Program (DESP).

Technical Bulletin, Medical 577, Sanitary Control and Surveillance of Field Water Supplies; provides general instructions and detailed technical guidance and recommendations for the sanitary control and surveillance of land-based field water supplies.

USAPHC. Technical Guide 230, Chemical Exposure Guidelines for Deployed Military Personnel; provides military exposure guidelines for chemicals in air, water, and soil for use during deployments.

APPENDIX B
EXPLANATION OF ACRONYMS AND ABBREVIATIONS

APG

Aberdeen Proving Ground

AWT

Advanced Water Testing

CONUS

Continental United States

DESP

Deployment Environmental Surveillance Program

DOEHS

Deployment Occupational and Environmental Health Surveillance

DUP

duplicate

FAC

free available chlorine

FDS

Field Data Sheet

HCL

hydrochloric acid

MED DET

Medical Detachment

MFWS

Military Field Water Standards

mL

milliliter

MSDS

Material Safety Data Sheet

N/A

not available

OEHSA

Occupational and Environmental Health Site Assessment

PHCR

Public Health Command Region

POC

point of contact

PPE

personal protective equipment

PVNTMED Svc

Preventive Medicine Service

QA/QC

Quality Control/Quality Assurance

RAD

radionuclide

ROWPU

Reverse Osmosis Water Purification Unit

Sample ID

sample identification number

SVOC

semivolatile organic compound

TB MED

Technical Bulletin Medical

TDS

total dissolved solids

TG

Technical Guide

TWK

Treated Water Kit

USACHPPM

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

USAPHC

U.S. Army Public Health Command

VOC

volatile organic compound