NEWS FROM THE FRONT

APRIL 2018

Medical Preparation and Prevention in the Horn of Africa

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Safeguarding the health of a command is indispensable for the success of any campaign. Non-Combat related disease and injuries can cause an enormous drain on the military's resources manpower and unit readiness.

INTRODUCTION

There are numerous health risks throughout the Combined Joint Task Force-Horn of Africa (CJTF-HOA) area that are potential threats to deployed personnel.

The information presented will familiarize you with the environment of the Horn of Africa (HOA) and will help you recognize your potential "enemies." As the preponderance of military forces are in Djibouti, this news from the front (NFTF) article discusses medical preparations and preventive measure leaders and Soldiers should take when deploying to the Horn of Africa, Djibouti City and Camp Lemonnier (CLDJ).

In order to maximize a deployment, ensure fulfillment of mission requirements and guarantee a positive experience, staying healthy is of the utmost importance.

Takeaways:

1) It is imperative that leaders ensure that the proper medical preparations, primarily immunizations, are adhered to prior to any deployment. This includes making sure the inoculations are given at the times required for them to take effect before units deploy.

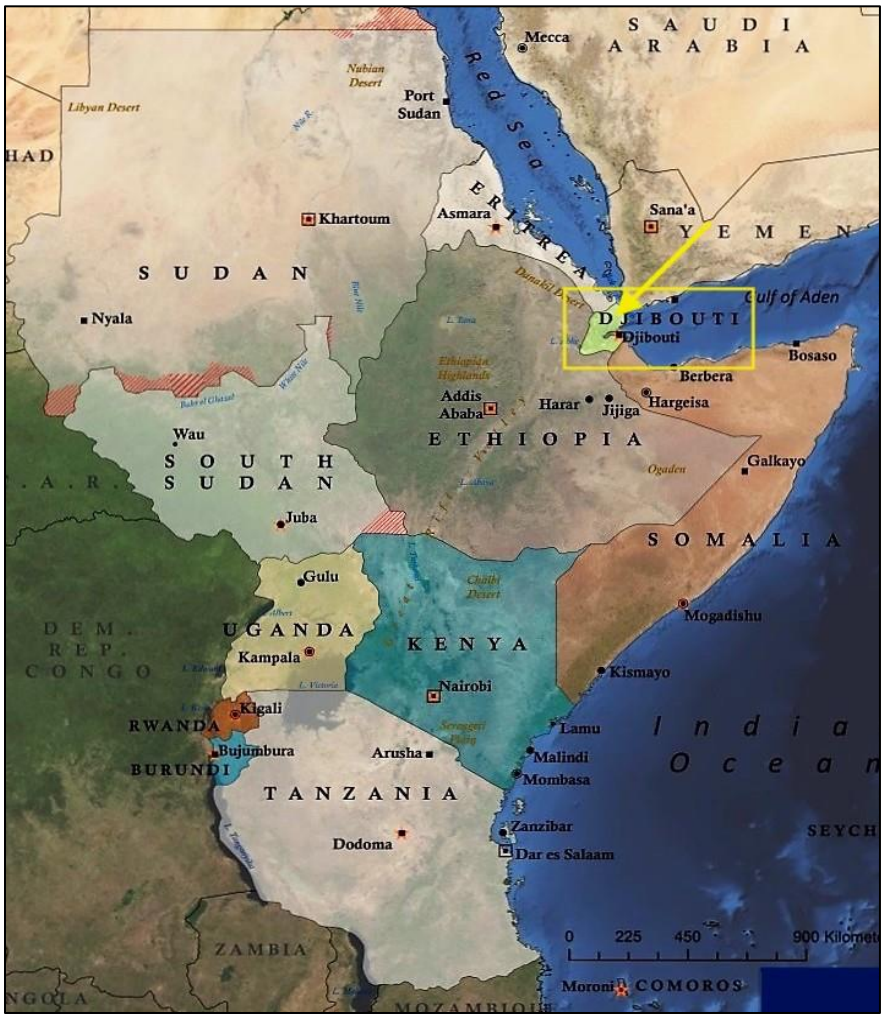
2) Soldiers and leaders must understand the physical environment they are deploying to in order to counter the threats they will meet while operating in the same. Some of these considerations are climate, field sanitation, biting bugs and other animals that threaten health, welfare and unit readiness.

3) Units must deploy with field sanitation kits and trained sanitation teams. FORSCOM Regulation 700-2 lists items, with NSN numbers, for a company-level field sanitation kit. Individual issue items such as insect repellent lotions and sprays, waterproof sunscreen, and bed nets are also essential. **(see appendix A for the complete list of items)**

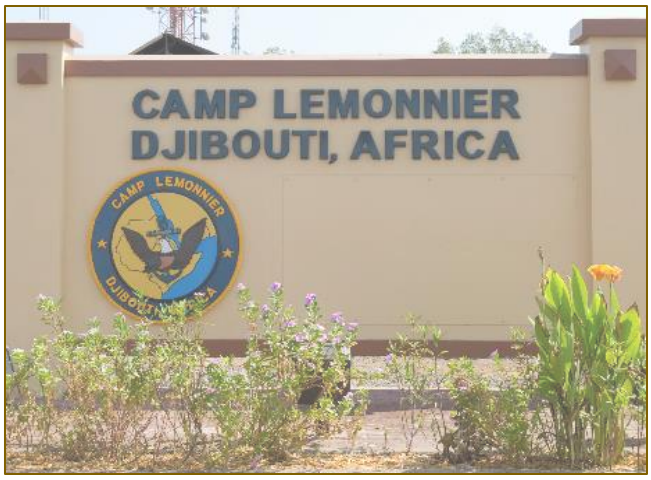
The Physical Operational Environment.

The HOA is a region within eastern Africa and is the most eastern extension of African land. There are variations as to which countries are considered part of the HOA, for this document, HOA refers to the countries CJTF-HOA oversees – Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, Sudan, Tanzania and Uganda.

The country DJIBOUTI lies at the intersection of the Gulf of Aden and the Red Sea between Eritrea and Somalia, giving access to one of the world's busiest shipping lanes.



Camp Lemonnier (CLDJ) lies within Djibouti City, the capital of Djibouti, on the south side of Djibouti-Ambouli International Airport, which serves as both a military and civilian airfield. The camp is the sole permanent American base in Africa and is the primary base of operation for U.S. Africa Command (AFRICOM) forces on the continent. CJTF-HOA is a tenant of CLDJ.



Approved for Public Release,
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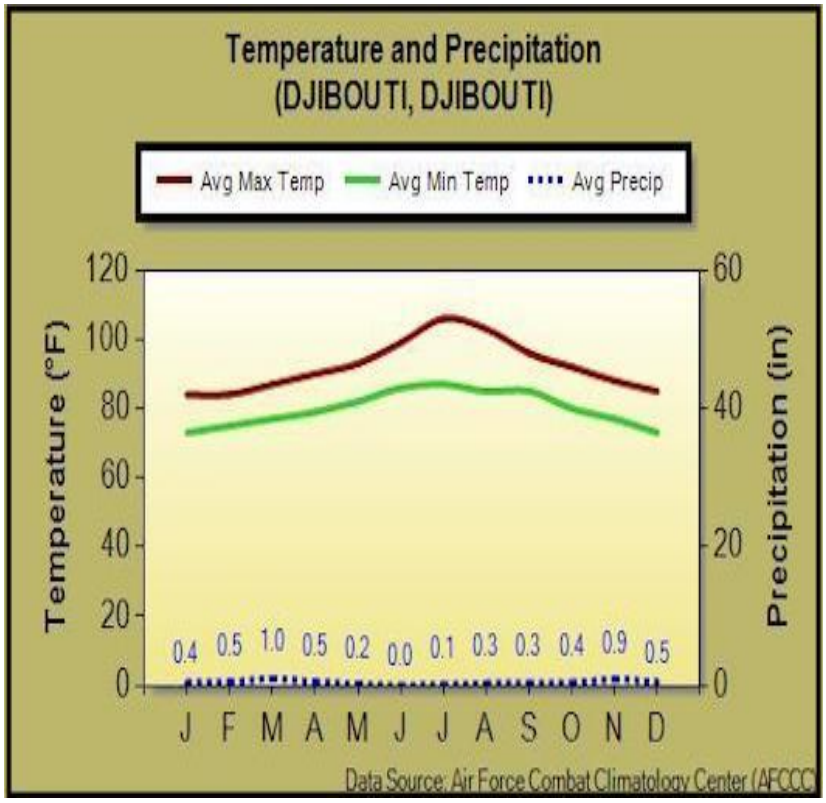
Djibouti is approximately 90% volcanic desert, with very small areas of interspersed pastureland and forests. There is a series of minor mountain ranges extending from the coastal plain to the Ethiopian highlands, peak elevation roughly 2000 meters (6600 feet). The coastline is 800 kilometers long (500 miles). Djibouti City and CLDJ sit on the coastal desert plains.

"Torrid", "scorching," and "sweltering" are all words used to describe Djiboutian weather. The desert climate has two seasons. There is a cool season from October to April, with low humidity and temperatures averaging from the low 70s to mid-80s. The hot season is from May to September with high levels of humidity and temperatures ranging from the low 90s to temperatures commonly above 110º F. There have been recorded daytime highs exceeding 120º F, but this is less common.



The Khamsin winds occur during the summer months, contributing to rise in temperatures. They blow off from the inland deserts, are hot, sand-laden, and can exceed 50 knots. People have likened the Khamsins to a "perpetual hair dryer blowing in the face." The powerful winds during the summer dry season are also a host to sand storms. Extreme high temperatures increase the potential for heat injuries and dehydration; sand and air particulates can precipitate respiratory problems. There is very little rainfall in the coastal areas where Djibouti City and Camp Lemonnier lie. The rainy season occurs during the cool season with most of the precipitation falling from January through March. The average annual rainfall for Djibouti is only about five to six inches per year. Much of the rain falls in quick torrents and because the water absorption rate of soil is very poor, water pools at the surface. These standing waters become breeding grounds for mosquitos.

Pre-deployment

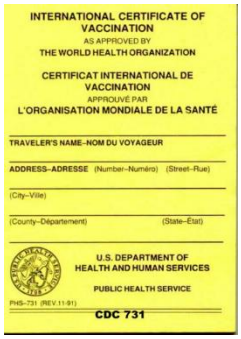
During pre-deployment activities at the CONUS Replacement Center (CRC) or at home station Soldier readiness processing (SRP), medical personnel screen records to ensure all routine medical requirements are complete and to identify any additional prerequisites for specific deployment areas.

Immunizations. In addition to the immunizations mandatory for routine medical readiness, the meningococcal, typhoid and yellow fever vaccines are added requirements for deployment to Africa. Vaccines are never 100% effective, however, vaccinations are still the best practices critical for prevention.

Meningococcal (MCG). Meningococcus bacteria spread through the *exchange of respiratory and throat secretions like spit (e.g., by living in close quarters, kissing)*. It causes infections of the lining of the brain, spinal cord and bloodstream. This disease can be treated with antibiotics, but quick medical attention is extremely important because consequences can be severe. More recently, there have been increased outbreaks of a specific MCG strain across Africa to include two countries within the CJTF-HOA area. Prevention includes vaccination, maintaining healthy practices, and avoiding close contact with people who are sick.

Typhoid Fever. Salmonella Typhi bacteria cause typhoid fever and *spread through contaminated water and food.* Salmonella Typhi only lives in the bloodstreams and intestines of humans and is shed in the feces. It is more common in areas of the world where handwashing is less frequent and water is likely contaminated with sewage. It can cause very high fevers, weakness, stomach pain and rash. This disease can be treated with antibiotics. Prevention includes vaccination and avoiding risky food/water.

Yellow Fever (YF). Yellow fever is a virus *transmitted through the bite of infected Aedes mosquitoes. This mosquito is a daytime feeder.* Most infected people have no symptoms or very mild symptoms. Symptoms include abrupt fever onset, chills, headache, body aches, nausea, vomiting, fatigue and weakness. Severe forms of the disease present with high fever, jaundice (yellow skin), bleeding, shock and multi-organ failure. There is no known treatment except supportive care and observation.There is low risk for YF in Djibouti, however several countries within the HOA area are at higher risk for this disease. Per DoD guidance, the vaccination is required for all of Africa except the Comoros, Morocco and Tunisia. Prevention includes using insect repellent, wearing protective clothing, and vaccination.


INTERNATIONAL CERTIFICATE OF VACCINATION
AS APPROVED BY THE WORLD HEALTH ORGANIZATION
CERTIFICAT INTERNATIONAL DE VACCINATION
APPROUVÉ PAR L'ORGANISATION MONDIALE DE LA SANTÉ
TRAVELER'S NAME–NOM DU VOYAGEUR
ADDRESS–ADRESSE (Number–Numéro) (Street–Rue)
(City–Ville)
(County–Département) (State–État)
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
PHS-731 (REV.11-91)
CDC 731

CDC 731. International Certificate for Vaccination or Prophylaxis (Yellow Shot Record).

All personnel traveling or deploying on official business must carry with them a CDC 731 containing an official Yellow Fever Certificate Stamp. It is not a

matter of leaving a country but being allowed entry into a country if traveling from or through a (YF) endemic area. If you do not receive the CDC 731 from CRC, ask for it when you inprocess the camp medical facility.

Deployment

Heat and Dehydration. There are many exotic types of health hazards present in Africa, however per the Commander of the Expeditionary Medical Facility (EMF) at CLDJ, the most common threat to the health of deployed soldiers is HEAT and DEHYDRATION. It is important to acclimatize properly and TB MED 507- Heat Stress Control and Heat Casualty Management is a good resource to use as guidance. There is a cautionary note however, acclimatization *DOES NOT* reduce the requirements of water intake.
https://phc.amedd.army.mil/PHC%20Resource%20Library/HeatIllness_FS_12-005-0316.pdf. AMEDD's heat illness site does a wonderful job of discussing heat illness, dehydration, personal risk factors, and signs, symptoms and actions for heat casualties, temperature risk categories and work/rest times and fluid replacement guidelines.

The next sections will review food and waterborne diseases, vector-borne diseases, respiratory diseases and will touch very briefly on animal-contact diseases, water-contact diseases and aerosolized dust or soil-contact diseases found in the east African area. The purpose is primarily to bring attention to the existence of these threats. In depth information is available by disease or by geographical location on various open websites such as for the Center of Disease Control and Prevention (CDC), the World Health Organization, (just to mention a couple) and a CAC-card required website for the National Center for Medical Intelligence, https://ncmi.dietrich.army.mil.

Food and waterborne diseases. Bottom-line if you're not sure "Boil it, cook it, peel it, or forget it."

Bacterial, viral and parasitic diarrheas are the most common afflictions in this category, caused by ingestion of contaminated water and food. Bacterial and parasitic infections are treated with medication; viral infections are treated with supportive care.

Hepatitis A and E are self-limiting viral infections of the liver. Hepatitis A is spread person-to-person through the fecal-oral route or consumption of contaminated food or water. Hepatitis E is contracted by ingestion of fecal matter, even in microscopic amounts, and is usually associated with contaminated water supply in countries with poor sanitation. Hepatitis E is highly endemic in Africa. There is a vaccination for Hepatitis A (part of routine medical readiness), there is no FDA approved vaccination for Hepatitis E. Treatment is supportive care.

Typhoid infection is a bacterial that can be contracted through uncooked food or contaminated water and was covered above under Immunizations.

Brucellosis is a bacterial infection most commonly transmitted by eating or drinking unpasteurized/raw dairy products and undercooked meat. Less commonly it can be spread by inhalation and through wounds in the skin/mucous membranes by contact with infected animals. Brucellosis infection can be treated with antibiotics.

General Tip. Good handwashing habits; if soap and water are not available use alcohol-based hand sanitizer and consume food, water and ice only from US–approved sources.

Vector-borne diseases. Bottom-line use personal protective measures daily as shown to the left.

There are an abundance of vectors and vector-borne diseases listed in medical references, only a few, most common to HOA, will be highlighted here.

Mosquitos carry multiple diseases such as Malaria, Dengue fever, Chikungunya, Yellow Fever, Rift Valley Fever, O'nyong Nyong, Sindbis, West Nile Fever, Lymphatic Filariasis. Five of them are considered high risk in countries within the CJTF-HOA area. Of note, the mosquito population, although still present, diminishes during the high temperatures during the summer months.

Dengue Fever is transmitted by mosquitoes of the *Aedes* family and is endemic to the eastern African region. There is no vaccination and treatment is supportive, therefore protection against bites is essential. The *Aedes* are "container breeders," they like to lay eggs in containers such as flower planters, dishes, pet water bowls, vases, water storage containers and standing water indoors. Not only does the *Aedes* family of mosquitos (also transmits Yellow Fever) feed during the day, but they also bite at night indoors and out, when lights are on. Dengue is present throughout the countries of CJTF-HOA and there have been documented cases in Djibouti and on CLDJ.

Malaria is a parasitic disease endemic to Africa and is transmitted by the *Anopheles* mosquito; this mosquito typically feeds at night. There are four types of malarial parasites depending on regions of the world. Two of them, plasmodium vivax and plasmodium ovale (both present in Africa) can be recurring if not treated properly. Malaria can be prevented (by prophylactic medication and personal protective measures) and active disease can be treated with medication. Doxycycline and Malarone are the two medications most commonly used for prophylaxis. There are areas in eastern Africa where Malarone is the preferred medication, so if taking Doxycycline and mission travel to other countries is necessary, it is imperative to consult with the EMF and the Preventative Medicine Section prior to departure. Why do we take Primaquine (P) after leaving the malaria-endemic area? Because the malaria cycle brings the parasite into the liver then into the bloodstream where they multiply and destroy red blood cells; this is the phase that causes symptoms. Doxycycline and Malarone destroy any parasite circulating in the bloodstream only. The P. vivax and P. ovale

species can exist in the liver as dormant parasites and weeks, months later may enter the bloodstream. Primaquine destroys the dormant liver parasites. Malaria has been diagnosed in Djibouti City and neighboring military camps, none on CLDJ.

Rift Valley Fever is considered high risk in Sudan, Somalia, Kenya and Tanzania. Primary transmission is through contact with body fluids or tissue from an infected animal. Less frequently, infection can occur through bites from an infected mosquito or other biting insects. Extended time spent in rural areas or outdoors in regions of outbreaks can increase risk of transmission to humans by vectors. There is no vaccination and treatment is supportive.

East African trypanosomiasis (better known as sleeping sickness) is spread by the tsetse fly. The fly bites during the day and is found in wooded areas and savannahs. The flies typically are not present in urban areas, but those going to game parks can be at risk. This disease is considered a high risk in Sudan and Uganda. There is no vaccination, but medication is available and treatment usually involves hospitalization and extensive follow ups.

Plague is a bacteria transmitted most commonly by infected fleas, on rare occasion it can also spread through contact with infected tissue and inhalation of infected droplets. It is considered high risk in Uganda and Tanzania. There is no vaccination and treatment of active disease is with antibiotics.

General tips. Wear permethrin treated uniforms issued at CRC (dry cleaning removes permethrin); wash and inspect body for insects, bites daily; launder uniform regularly; use permethrin treated bed net if sleeping outdoors; do not wear aftershave lotion, cologne or perfume in the field; bright colors and black attract some vectors so wear neutral colors.

Respiratory diseases. Bottom-line, to prevent spread of disease, *DO NOT* sneeze or cough into your hand.

Meningococcal meningitis, tuberculosis and especially acute respiratory disease – such as the common cold and flu, are potential risks during deployment. **Meningococcal** is discussed in the immunization section. **Tuberculosis** (TB) is caused by a bacteria transmitted through the air via droplets expulsed from the respiratory tract by an infected person. If another person inhales only a few of the bacteria, they too can become infected. There is a vaccine for TB, however it is not commonly used in the U.S. TB can be treated with a multi-drug regimen. Healthcare workers are probably at highest risk of contracting the disease, but contact with an infected person can occur at any time in close quarters. If there are any concerns about exposure, and/or depending on deployment location, CRC should place a TB skin test upon return stateside. The **common cold** and other upper respiratory inspections are easily spread in deployed environments. The only prevention is to cover your face when sneezing or coughing and to wash hands frequently.

General tips. Cough/sneeze into upper sleeve; wash hands or use an alcohol based hand sanitizer frequently and always after sneezing, coughing, nose blowing; if possible have three feet between beds and sleep head to toe.

There are a wealth of other diseases and hazards that flourish in the environment, in water, dust and soil and in other mammals.

Water. Leptospirosis and Schistosomiasis are organisms found in fresh water that can infect through contact with the skin. Doxycycline can be used for prevention of Leptospirosis if high exposure is unpreventable. The best prevention measures are to avoid unnecessary contact with rivers, lakes, irrigated fields; briskly towel dry wet areas and apply 70% alcohol; shower and wash clothes; and change wet socks. Venomous marine life, rough corals, urchins and sharks exist in coastal waters. Swim only at approved beaches and never swim alone.

Dust and Soil. Infection by helminths (worms), Lassa virus, Hantavirus occur through aerosolized dust or soil contact. Avoid if possible inhalation of dust; report presence of rodents; eat fruits and vegetables from U.S. approved sources only; never walk barefoot or allow skin contact with soil. If this occurs, immediately wash with soap and water.

Mammals. Many people tend to equate Ebola, Marburg hemorrhagic fever, and monkey pox with Africa in general. These diseases are not prevalent in the CJTF-HOA region. Per CDC, the last reported case of Ebola in Uganda was in 2012. In general, whether disease is suspected or not, always use barrier precautions when in contact with blood or body fluids and avoid close contact with any animals. Rabies is the highest risk among the possible animal contact diseases. At CLDJ, there is not a visible dog population; however, there are some feral cats sauntering around. Per the camp Preventative Medicine OIC, there is also a fox and some mongooses sharing local real estate. As precautions, never feed, handle or house wild or stray animals; report presence of rodents; maintain a clean working and housing environment; do not handle objects or merchandise made from skins or other animal parts such as hides, rugs, drumheads.

Air quality. Overall there is some deterioration of air quality at CLDJ as a result of multiple air pollution sources. Dusty conditions throughout the year, burning smoke from a dump outside of camp, respirable particulates released by various fuels and emissions contribute to this degradation. The Army Public Health organization performs environmental monitoring of air quality and reports on levels and thresholds of particulate matter of health concern, airborne metals, volatile and semi-volatile organic compounds. These are considered to be low to moderate risks at CLDJ. *RECOMMENDATION.* If you have not already done so following a deployment to Iraq and/or Afghanistan, go to the Army Public Health Center website to read about the Airborne Hazards and Open Burn Registry - https://phc.amedd.army.mil/PHC%20Resource%20Library/AHOBPR.pdf, or go directly to https://veteran.mobilehealth.va.gov/AHBurnPitRegistry/#page/home to register.

Venomous snakes and arthropods. Needless to say, the list of snakes and arthropods known to inhabit east Africa is vast. Meet some of the residents of CLDJ

According to the Preventative Medicine personnel, most of the "critters" find their way indoors where it is cool. Especially as temperatures rise, they too want to escape the scorching heat.

Best practices include maintaining good sanitation; never swat or crush an arthropod on your skin, brush it off; shake out boots, bedding and clothing prior to use, especially if kept in a pile on the floor; never walk barefoot. Avoid piles of rocks, wood, garbage and debris, darkened spaces and corners that provide hiding places. Do not prop doors open. Get immediate medical attention if ever stung or bitten.[30]

Conclusion

Military forces must constantly prepare to fight and win on the battlefield. Intelligence Preparation of the Battlefield (IPB) defines the battlefield environment and during this process the commander and subsequently the forces learn about the threats. Although medical briefings and preventative medicine is not a formal part of the IPB process, it is imperative for all to understand the atypical threats in order to reduce the risk of disease and non-battle injury during operations so that forces are ultimately victorious on the battlefield. Wartime epidemics of infectious diseases have decimated the fighting strength of armies, caused the suspension and cancellation of military operations, and brought havoc to the civil populations of the belligerent and nonbelligerent alike. Medical preparation and prevention are crucial elements to military readiness and success.

APPENDIX A

Field Sanitation Team (FST) Expendable Items

(Source: FORSCOM Reg 700-2)

SUPPLY ITEMS FOR PREVENTION OF HEAT INJURIES

ITEM	NSN	UI	AUTH QTY	CL	REMARKS
Wet Bulb-Globe Temperature (WBGT) Kit	6665-00-159-2218	EA	1/unit	9	Inventory component; replace broken thermometers, clean/replace wick as needed.
WBGT Black Globe Thermometer	6685-01-110-4429	EA	1	9	WBGT component replacement as needed.
WBGT Wet Bulb Thermometer	6685-01-110-4430	EA	1	9	WBGT component replacement as needed.
WBGT Dry Bulb Thermometer	6685-01-110-6563	EA	1	9	WBGT component replacement as needed.
WBGT Wick		EA	1	9	Use cotton shoestring for replacement.

SUPPLY ITEMS FOR PROVIDING POTABLE WATER

ITEM	NSN	UI	AUTH QTY	CL	REMARKS
* Calcium Hypochlorite 6 oz jar	6810-00-255-0471	BT	1/50 indv	2	Check expiration dates quarterly. See Note 1.
Measuring Spoon 0.5g	6640-01-070-7877	EA	1	2	
Test Paper Chlorine	6640-01-502-1866	BT	2	2	
Water Purification Tablet, Chlorine (10 tablets)	6850-01-352-6129	PG	10/indv	2	Check expiration dates quarterly.
Water Purification Tablet, Iodine, 8 mg (50 tablets)	6850-00-159-2218	BT	2/indv	2	Check expiration dates quarterly. Randomly open bottles to inspect that tablets are steel grey.

SUPPLY ITEMS FOR PROVIDING FOOD SERVICE SANITATION

ITEM	NSN	UI	AUTH QTY	CL	REMARKS
Alcohol Swabs, Sgl Pads 500s	6510-01-153-4638	BX	1/150 indv	8	
Disinfectant, Food Service (12 packets)	6840-00-810-6396	BX	1/75 indv	2	Check expiration dates quarterly.
Test Paper, Chlorine Residual (10/PG)	6630-01-012-4093	PG	1	2	Check expiration dates periodically.
Thermometer, Food	6685-00-444-6500	EA	2	2	Calibrate as per instruction.

SUPPLY ITEMS FOR PERSONAL PROTECTIVE EQUIPMENT (PPE)

ITEM	NSN	UI	AUTH QTY	CL	REMARKS
Gloves, Chemical and Oil Protective (size 9) or (size 11)	8415-01-012-9294 8415-01-013-7384	PR	2/150 indv	2	Maintain cleanliness, replace when torn.
Goggles, Industrial Non-vented	4240-00-190-6432	EA	2/150 indv	2	Maintain cleanliness, store to prevent scratching.

SUPPLY ITEMS FOR CONTROL OF ARTHROPODS/RODENTS

ITEM	NSN	UI	AUTH QTY	CL	REMARKS
Chest, #3, 30x18x10 Aluminum	6545-00-914-3480	EA	As Reqd to load	9	See Note 2.
***** Insect Repellent, Personal Application, 2 oz tube (12 tubes/BX)	6840-01-284-3982	BX	4 tubes /indv	9	Visually inspect containers periodically.
* Insect Repellent, Clothing Application IDA Kit (12 kits/BX)	6840-01-345-0237	BX	4 kits /indv	9	Visually inspect containers periodically.
* Insect Repellent, Clothing & Bednet Treatment, Aerosol, 6 oz can (12 cans)	6840-01-278-1336	BX	1 can /indv	9	Visually inspect containers periodically.

ITEM	NSN	UI	AUTH QTY	CL	REMARKS
* Insecticide, Demand Pestab 10% Tablets, Unit Dose (40 tablets / CO)	6840-01-431-3357	CO	1/150 indv	9	Visually inspect containers periodically.
***** Insecticide d-Phenothrin 2% Aerosol, 12 oz	6840-01-412-4634	CN	1/indv	9	Visually inspect containers periodically.
Mouse Trap, Spring Indv	3740-00-252-3384	DZ	4dz / 150 indv	9	Maintain/clean as needed.
Rat Trap, Spring	3740-00-260-1398	DZ	4dz / 150 indv	9	Maintain/clean as needed.
* Rodenticidal Bait Anticoagulant, 0.005% diphacinone (40 blocks/BX)	6840-00-089-4664	BX	1/150indv	9	Visually inspect containers periodically.
***** Rodenticidal Bait Anticoagulant, 0.005% brodifacdoum (Talon-G) 11 lb. can	6840-01-426-4808	CN	1/150indv	9	Visually inspect containers periodically. See Note 2.
***** Rodenticidal Bait Anticoagulant, 0.005% bromadiolone, (Maki Pellets) 11 lb can	6840-01-151-4884	CN	1/150indv	9	Substitute for 6840-01-4808. Visually inspect container periodically. See Note 2.
Sprayer, Insecticide, Manually Carried, 2 Gal	3740-00-641-4719	EA	1/150indv	9	Maintain/store properly as per manual instruction. See Notes 4 & 5.
Sprayer, Insecticide, Manually Carried, 1-Gal	3740-00-191-3677	EA	1/150indv	9	Substitute for 3740-00-641-4719. See Notes 4 & 5.
Swatter, Fly	3740-00-252-3383	DZ	1/150indv	9	

***** Indicates items with special handling requirements

NOTE 1: Pesticides should be properly stored. Additionally, pesticides should be over packed in Air-Transportable Over pack containers to facilitate division into teams. Refer to TM 38-250,"Preparing Hazardous Materials for Military Air Shipment," 25 November 1994, for additional guidance on air transportation of pesticides. The International Air Transportation Association's "Shippers Declaration for Dangerous Goods" form must be used for air transport of those pesticides, which are regulated.

NOTE 2: Due to shelf life considerations DO NOT pre-stock. Order on a priority basis prior to the anticipated deployment. **For emergency procurement: Contact the Defense Supply Center, Richmond (DGSCR) Emergency Supply Operations Center (ESOC) at DSN 695-4865 [commercial (804) 279-4865]. This ESOC is staffed 24 hours, 7 days per week.**

NOTE 3: Demand Pestab replaces Chlorpyrifos, 40 ml Btl (Dursban LO), 6840-01-210-3392. Dursban LO may be used until stocks are exhausted.

NOTE 4: Three sets of repair parts should be acquired for each sprayer. Repair parts will include items such as: check valves, pressure cups, filters, O-rings, four way nozzles with crack & crevice tips. Repair parts may be ordered from sprayer manufacturer by part number as Class IX repair parts.

NOTE 5: All sprayers should be equipped with a pressure gauge. If not, order a pressure gauge, NSN 3740-01-332-8746 and filter, NSN 4330-01-332-1639, to retrofit the sprayers.

NOTE 6: Stocked only if authorized LIN S45531, Pesticide Dispersal Unit, and Backpack.