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# Marine Corps Field Feeding Program

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**U.S. Marine Corps**

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**PCN 144 000095 00**

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DEPARTMENT OF THE NAVY  
Headquarters United States Marine Corps  
Washington, DC 20380-1775

28 June 2004

FOREWORD

Marine Corps Reference Publication (MCRP) 4-11.8A, *Marine Corps Field Feeding Program*, provides guidance for commanders, staffs, logisticians, food service officers, supply officers, food technicians, mess chiefs, and food service Marines. It describes the Marine Corps' food services support operations in an expeditionary environment, and incorporates procedures developed during the Marine Corps Combat Development Command food service quick response study and field trials. Tactics, techniques, and procedures from other Service manuals that apply to Marine Corps operations have been incorporated to provide comprehensive, informative coverage of food services operations in the Marine Corps.

The Marine Corps field feeding program (MCFFP) supports the Marine air-ground task force (MAGTF) in an expeditionary environment through flexibility in feeding methods. The MCFFP furnishes the capability to provide Marines the right meal, at the right place, at the right time. Feeding methods, rations, and equipment described provide commanders a variety of options to support sustained feeding operations in an expeditionary environment.

This publication supersedes MCRP 4-11.8A, Food Services References, dated 27 September 2001.

Reviewed and approved this date.

BY DIRECTION OF THE COMMANDANT OF THE MARINE CORPS

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Publication Control Number: 144 000095 00

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# MARINE CORPS FIELD FEEDING PROGRAM

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# CHAPTER 1

## FUNDAMENTALS

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### Mission Statement

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The Marine Corps Field Feeding Program (MCFPP) consists of the right mix of personnel, rations, equipment and training in order to support the Marine air-ground task force (MAGTF) commanders expeditionary maneuver warfare and peacetime feeding requirements.

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### Concept of Organization

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The MCFPP has three main elements: a family of rations; equipment to support storage, distribution, and preparation of rations; and food service and support personnel to operate the program.

#### Command Element (CE)

The Marine expeditionary force (MEF) headquarters group (MHG) will provide organic food service personnel and tray ration heating system (TRHS) capability to the MEF CE. Personnel assigned to the food service company of the combat service support element (CSSE) will provide field food service system (FFSS) capability to the MEF CE.

#### Ground Combat Element (GCE)

The food service section of the battalion/regiment will provide organic food service personnel and TRHS capability to the regiment. Personnel assigned to the food service company of the CSSE will provide FFSS capability to the GCE.

#### Aviation Combat Element (ACE)

The food service section of the Marine wing support squadron (MWSS) will provide organic food

service personnel and TRHS and FFSS capability to the Marine aircraft wing.

#### CSSE

- The food service company of the CSSE will provide organic food service personnel and TRHS and FFSS capability to the CSSE.
- Personnel assigned to the food service company of the CSSE will provide FFSS capability to the GCE and CE.
- The rations platoon will provide Class I support to the CE, GCE, ACE, and CSSE.

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### Concept of Employment

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The MCFPP supports the MAGTF commander in all theaters of operation. Deployed forces will subsist on a mix of rations that will consist of packaged operational rations (PORs), unitized rations, and enhancements. The FFSS and TRHS will be used in the preparation of unitized rations.

Food service is a command support service in that it is an inherent capability normally available at the organizational level. As a command support service, it is a subfunction of services, categorized under the warfighting function of logistics. As logistics is a national and Service responsibility, so is food service and Class I. Class I in the joint arena is considered an area of common item support (CIS). Accordingly, responsibility for supply of Class I after D+60 is normally assigned by the force commander to a Service component command, normally the dominant or most capable service user. While allied nations are also responsible to provide their own Class I support, coalition efforts in the past have received at least temporary support from the most capable United States (US)

Service until allied logistics capabilities matured. During the first 60 days or before the establishment of a CIS manager, the Marine Corps has often supported these operations.

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## Responsibilities

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The goal of food service support is to provide nutritional meals. It includes management and operation of field messes and equipment that prepare and serve food and management responsibilities of ordering and accounting for all subsistence from the time of receipt until the time of consumption.

### Deputy Commandant for Installations and Logistics

The Deputy Commandant for Installations and Logistics (DC, I&L), Facilities and Services Division, Services Branch, Food Service and Subsistence (LFS-4) is the principal staff advisor to the Commandant of the Marine Corps (CMC) on food service matters. LFS-4 is responsible for reviewing, coordinating, evaluating, and justifying programs and budgets. LFS-4 provides field and garrison policy guidance, supervision, and technical assistance on the acquisition, storage, issue, and accountability of subsistence items and equipment, facility design, sanitation issues, and contracted food services. LFS-4 also works with Defense Supply Center Philadelphia (DSCP) to develop plans for using excess stocks and rotating war reserve materiel (WRM).

The DC, I&L (Logistics Plans, Policies, and Strategic Mobility Division, Logistics Operations and Sustainment Center [LPO]) is the designated Marine Corps point of contact for WRM program matters in both deliberate planning and in crisis planning. Logistics Plans, Policies, and Strategic Mobility Division (LP) is the approving authority for the release of ground WRM stocks during crisis execution. LFS-4 is the Marine Corps representative for WRM budgeting and funding requirements and

industrial preparedness planning during deliberate planning. Marine Corps Order (MCO) P4400.39, *War Reserve Materiel Policy Manual*, provides detailed information on responsibilities, planning, and withdrawal of Class I requirements during crisis execution.

### Defense Logistics Agency

The Defense Logistics Agency (DLA) is a US Department of Defense (DOD) agency. The Director, DLA reports to the Under Secretary of Defense for Acquisition, Technology and Logistics through the Deputy Under Secretary of Defense (Logistics and Materiel Readiness). DLA provides worldwide logistics support for the missions of the Military Departments and the unified combatant commands during peace and war. It also provides logistics support to other DOD components and certain Federal agencies, foreign governments, international organizations, and others as authorized.

### Defense Supply Center Philadelphia

DSCP is a primary level field activity of the DLA. It procures, inspects, stores, and distributes subsistence supplies. The Operational Rations Business Unit is responsible for supplying PORs, unitized rations, bread shelf stable (BSS), and ultra high temperature (UHT) milk. The Produce Business Unit is responsible for supplying fresh fruits and vegetables through the prime vendor program. DSCP operates a number of storage and distribution centers. Under the Worldwide Information Management System, the Marine Corps submits requirements for war reserve stock by National Stock Number (NSN) to DSCP. Requirements are based on contingency plans for deployment.

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## Theater Class I (Subsistence)

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Class I support after D+60 is normally an Army mission. The US Army's theater Class I supply procedures are addressed in Field Manual (FM) 10-23, *Basic Doctrine for Army Field Feeding and Class I*

*Operations Management.* At the Marine Corps forces/MEF level, force commanders are responsible for determining operational feeding policy. A feeding concept is established early in planning to reduce potential problems during operations. The normal lead-time for delivery of Class I in the continental United States (CONUS) is 30 days, and for outside the continental United States (OCONUS) is 60 to 90 days. The food service officer (FSO) at the MEF G-4 and major subordinate command level makes specific recommendations to the commander regarding the implementation of the operational feeding policy and development of the feeding concept.

### Deployment Plans

Deployment plans should call for using PORs initially and, as the theater matures, progressing to a meal selection of unitized rations with A-ration enhancements. While selection of the ration is contingent upon the unit's mission, the end state is to provide the best meal possible. Medical units' deployment plans must include the unitized B-ration (UBR) or unitized group rations - B (UGR-B) augmented with the medical diet field feeding supplement.

### Class I Availability

Not all types of Class I may be available in each area of operations (AO) at the onset of hostilities. The AO Class I manager (with guidance from the commander) must determine the rations to be moved forward using a push system. When logistics personnel, rations, transportation, and equipment are in place, a pull system may be implemented. Using the pull system, the unit places a demand (ration request), and the CSSE reacts to meet that demand.

### Tactical Food Service Responsibilities

The unit commander responsible for field food service operation will ensure that—

- The unit has all authorized field food service and supporting equipment listed in the table of equipment (T/E).
- Authorized administrative, Navy Preventive Medicine Unit (PMU), and supply personnel are available and trained.
- The unit basic load (normally 3 days of supply [DOS] of PORs) is on hand.
- Adequate transportation support capabilities are available to move food service personnel, equipment, rations, ice, water, fuel, trash, and residual rations.
- Sufficient mess attendant support is available for field messes preparing unitized rations.
- Personnel strength data (present-for-duty by service component) is provided to the mess chief in a timely manner.

#### *Food Service Officer /Food Service Technician*

The FSO's and food service technician's responsibilities are to advise commanders, assist the mess chiefs, and assist in resolving food service-related problems. The FSO must be thoroughly familiar with the MCFPP, and provide assistance in field operations from as early as possible in the planning phase until the mission is complete.

#### *Mess Chief*

The senior food service Marine is generally designated the unit mess chief and is central to the successful planning, execution, and operation of field feeding at all levels of the MAGTF. The mess chief must know all aspects of field food service operations and make the most efficient use of assigned personnel, equipment, facilities, and supplies.

### *Food Service Personnel*

The MCFFP provides food service Marines to prepare all meals in the family of rations. Staffing is based on the feeding standard as established in Chapter 2, MCFFP Rations and Menus. The MCFFP gives commanders the capability to serve two hot meals daily—mission, enemy, terrain and weather, troops and support available-time available (METT-T) dependent.

### *Mess Attendant Support*

The commander is responsible for tasking supported units with providing mess attendant support to the field mess. The use of the UBR increases the sanitation workload. Staffing of food service personnel is not designed to handle this increase without unit augmentation. The number of personnel required depends on the unit feeding strength, mission, and remote site feeding versus the consolidated feeding requirement. Consult with the FSO when determining required mess attendant staffing.

### *Combat Service Support*

Materiel readiness branch in the force service support group coordinates the personnel and equipment to support the MAGTF's Class I requirements in an operational theater. Combat service support units support these requirements once the theater has matured sufficiently to accommodate the family of rations.

Food service personnel support Marines in military operations ranging from military support to domestic relief operations to foreign humanitarian assistance to peacekeeping operations to armed conflict. Differences in feeding operations among the CE, GCE, ACE, and CSSE will reflect the differing missions of each element. The MCFFP adjusts for those differences and provides a variety of equipment and a family of rations to support any situation. Although methods of feeding and accountability are designed to support military personnel, they could apply to feeding a civilian population needing assistance.

However, the primary mission of food service personnel is to provide food service and Class I support to deployed forces. FSOs may be required to provide assistance in the development of requirements documents for the contracting of food service support in situations that require the feeding of a civilian population.

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## **Tactical Feeding**

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Tactical feeding is expeditionary feeding of forward units or elements and fixed base camps, whether in combat or in training. When supporting units are on the move, field feeding must be highly mobile. Employment of the traditional field mess or FFSS is usually not recommended in supporting rapidly moving units.

### **Base Camp Feeding**

Base camp feeding is the traditional field mess or the FFSS. Base camp feeding (feeding in a static environment) can be employed in combat or training, depending on the mission. Frequently, the CSSE and ACE operate in static environments conducive to this type of feeding. Logistical requirements for displacing base camp feeding sites are sizable and not recommended.

### **Forward Unit Feeding**

Under the current MCFFP, infantry units have food service Marines and equipment assigned to their table of organization (T/O) and T/E, providing commanders a capability to employ resources as the tactical situation permits. One option is to send food service Marines forward with a TRHS mounted in a high mobility multipurpose wheeled vehicle (HMMWV) cargo carrier to support different/separate units. This option requires preparing beverages at the field mess site, heating some of the rations on the move, and heating the remainder of the rations at the site. A second option is for food to be prepared in the rear at the field mess and sent forward in insulated containers and served.

## CHAPTER 2

# RATIONS AND MENUS

The MCFFP family of field rations authorized for use for field feeding consists of POR, unitized rations, and A-ration enhancements. Under certain conditions, field contract meals and host nation messing are also authorized. Unitized rations include unitized group ration-heat and serve (UGR-H&S), UBR, and unitized group ration-B (UGR-B). PORs include meals, ready to eat (MREs); religious meals (kosher and Halal); ration, cold weather (RCW); meal, cold weather (MCW); BSS; and UHT milk. A-ration enhancement should be added to PORs and unitized ration meals to increase dietary fiber and troop acceptance. NSNs, prices, and identification (ID) of all Class I are listed in the DLA 8900 Federal Supply Catalog Price List.

The approved Marine Corps field feeding policy is one POR and two hot meals per day. Ideally, PORs should be served for lunch, and hot meals served for breakfast and dinner. The primary rations for hot meals during all field feeding are the UBR or UGR-B and UGR-H&S. [Note: A heated MRE does not constitute a hot meal.] The inclusion of two unitized ration meals in the standard of three quality meals per day is based on units having the required food service, support personnel, and equipment necessary for implementation. Commanders should not attempt to feed unitized ration meals if these requirements are not available.

The POR is designed for individual or small group feeding when the tactical situation is so unstable that a field mess cannot be established. The MRE is best used when the levels of combat are intense or unit activity precludes the use of a prepared unitized ration. Examples of the right time and place for Marines to use the MRE are when conducting combat operations in fighting positions or widely dispersed at remote sites. PORs should not be used as the sole daily diet

beyond 21 days. The UGR-H&S is used as a bridge between the POR and the UBR or UGR-B. The UBRs and UGR-B are best used when units are located in more stable or uncontested regions on the battlefield or AO. These meals require more time and resources to prepare and depend upon a secure area and the logistical capability to deliver, prepare, and serve all components.

Operational planning shall be based on the following ration mix:

- Days 1 to 21 consist of PORs (MRE, RCW or MCW).
- Days 22 to 90 consist of the following computation of the total personnel to be fed—
  - ◆ 20 percent—PORs, three meals per day.
  - ◆ 30 percent—UGR-H&S, two meals per day/POR, one meal per day.
  - ◆ 50 percent—UBR/UGR-B, two meals per day/POR, one meal per day.
- Fuel bar, trioxane (FBT) are computed two FBTs per one POR.
- Unitized ration meals shall be introduced into the feed plan as soon as the tactical, operational, and logistical situation permits. (The feed plan is the standard introduction of appropriate rations mission, enemy, terrain and weather, troops, and support available-time-available (METT-T) dependent.)

*Note: RCW/MCW will be used in a cold weather environment.*

Patients in field hospitals will receive three hot UBR or UGR-B ration meals daily augmented with the medical diet field feeding supplement. MREs are authorized for patients in hospitals only in emergency situations when other rations are not available. Perishable supplies will be added to the menu as they become available.

A ration is an amount of food that is nutritionally adequate to feed one person for one day. The

Marine Corps uses a family of rations. Major subordinate command FSO/food technician/mess chief will provide commanders the guidance in choosing the appropriate ration that best supports their tactical and logistical situations.

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## Packaged Operational Rations

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### Meal, Ready to Eat

The MRE is the Marine Corps primary POR. Each MRE is designed to sustain an individual engaged in heavy activity such as military training or during actual military operations. MREs are packaged meals designed for consumption as individual meals or in multiples of three as a complete day's ration. Except for the beverages, the entire meal is ready to eat. The MRE also contains a ration supplement, flameless heater (RSFH) in each flexible pouch to heat the entrée. Each meal provides an average of 1,250 kilocalories (13 percent protein, 36 percent fat, and 51 percent carbohydrates). Each box contains 12 meals. The net weight per case is approximately 22 pounds; size is 1.02 cubic feet. The ration has a shelf life of 3 years when stored at 80°F, and 6 months when stored at 100°F.

### Ration, Cold Weather

The RCW is used to sustain an individual engaged in operations or training in cold weather environments or under arctic conditions. The individual prepares the food items. If all components are hydrated, the water requirement is 90 ounces. The RCW consists of one full day's (ration) feeding packaged in two flexible meal bags made of white camouflage material. Each box contains six rations. Each ration provides approximately 4,500 kilocalories (8 percent protein, 32 percent fat, and 60 percent carbohydrate). The net weight per case is approximately 21.31 pounds; size is .90 cubic feet. The ration has a shelf life of 3 years when stored at 80°F, and 6 months when stored at 100°F.

### Meal, Cold Weather

The MCW is used to sustain an individual engaged in operations or training in cold weather environments or under arctic conditions. It will not freeze, contains extra drink mixes for countering dehydration during cold weather activities, and is packaged in a white pouch. MCWs are designed for consumption either as individual meals or in multiples of three as a complete day's ration. The individual prepares the food items. If all components are hydrated, the water requirement is 34 ounces per meal. Each meal provides approximately 1,540 kilocalories (15 percent protein, 35 percent fat, and 50 percent carbohydrates). Each box contains 12 meals. The net weight per case is approximately 15 pounds; size is 1.02 cubic feet. The ration has a shelf life of 3 years when stored at 80°F, and 6 months when stored at 100°F. The MCW will replace the RCW upon depletion of the RCW stock.

### Meal, Religious

Religious meals consist of kosher and Halal meals. These meals feed those individuals in the Military Service who have been command screened and whose religious preferences require them to maintain a strict Kosher or Halal diet. These meals are designed for consumption as individual meals or in multiples of three as a complete day's ration. Each meal consists of one kosher or Halal certified entrée and religiously certified/acceptable complementary items sufficient to provide the recommended daily nutritional requirements. It is totally self-contained meal, however, it is not combined in a flexible meal pouch. Each case of religious meals contains two intermediate boxes, one box with 12 entrées and one box with 12 component/accessory items. Except for the beverages, the entire meal is ready to eat. Each meal also contains a RSFH for heating the entrée. Each meal provides an average of 1,200 kilocalories (11 to

13 percent protein, 37 to 40 percent fat, and 48 percent carbohydrates). Each box contains 12 meals. The ration has a shelf life of 10 months. Due to the short shelf life of these meals, they should be provided in the fly-in echelon, per MCO P4400.39.

### Humanitarian Daily Rations

The Department of State is responsible for humanitarian daily rations (HDRs). Combatant commanders are responsible for transporting the HDRs. When they arrive on site, nongovernmental agencies or embassies assume responsibility. These rations are designed for feeding large populations of displaced persons or refugees under emergency conditions. Rations are not funded for or consumed by the military, per MCO P4400.39.

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## Unitized Rations

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### Unitized Group Ration-Heat and Serve

The UGR-H&S consists of thermally processed, pre-prepared, shelf-stable food items packaged or unitized in 50-man modules designed for short term group feeding situations or forward feeding of maneuver units or when the tactical, logistical, and operational situations preclude establishing an organized field mess. The UGR-H&S is a bridge between the POR and the UBR. Long-term sole subsistence on UGR-H&S will have the same effect on physiology and morale as PORs. This ration requires no refrigeration, unless A-ration enhancements are added to the menu. The UGR-H&S menu includes 7 breakfast meals and 14 lunch/dinner meals. UGR-H&S items include entrées, starches, vegetables, and desserts. UGR-H&S items are packaged in hermetically sealed rectangular pans; however, some vegetables are packaged in #10 cans. Each module also contains related items such as disposable items (tableware, trays, cups, and trash bags) to feed 50 individuals. The ration is

designed to have a shelf life of 18 months at 80°F. Each meal, when supplemented with A-ration enhancements, provides an average of 1,450 kilocalories (14 percent protein, 32 percent fat, and 54 percent carbohydrates). Each module consists of three boxes; the weight per module is approximately 124.5 pounds; size is 5.25 cubic feet. There are eight modules (24 boxes/400 meals) per pallet. Trained food service Marines military occupational specialty (MOS) 3381, are required to prepare the UGR-H&S rations using the TRHS.

### Unitized B-Ration

The UBR consists of canned/dehydrated items packaged or unitized in 100-man modules and is designed to sustain groups of military personnel when the tactical, logistical, and operational situation permits establishment of an organized field mess. This ration requires no refrigeration, unless A-ration enhancements are added to the menu. The UBR menu includes 10 breakfast meals and 10 lunch/dinner meals. UBR menu items include entrées, starches, vegetables, desserts, drink mixes, juices and bread mixes. Each module also contains related items such as disposable items (tableware, trays, cups, and trash bags) to feed 100 individuals. The ration is designed to have a shelf life of 24 months at 80°F. Each meal provides an average of 1,435 kilocalories (13 percent protein, 33 percent fat, and 54 percent carbohydrates). Each module consists of six boxes; the weight per module is approximately 229.1 pounds; size is 12 cubic feet. There are two modules (12 boxes/200 meals) per pallet. Trained food service Marines (MOS 3381), are required to prepare the UBR.

### Unitized Group Ration-B

The UGR-B consists of canned/dehydrated items unitized in 50-man modules and is designed to sustain groups of military personnel when the tactical, logistical, and operational situation permits

establishment of an organized field mess. This ration requires no refrigeration, unless A-ration enhancements are added to the menu. The UGR-B menu includes 7 breakfast meals and 14 lunch/dinner meals. UGR-B menu items include entrées, starches, vegetables, desserts, drink mixes, juices, and bread mixes. Each module also contains related items such as disposable items (tableware, trays, cups, and trash bags) to feed 50 individuals. The ration is designed to have a shelf life of 18 months at 80°F. Each meal provides an average of 1,300 kilocalories (approximately 15 percent protein, 30 percent fat, and 50 percent carbohydrates).

Each module consists of three boxes; the weight per module is approximately 125 pounds; size is 5 cubic feet. There are eight modules (24 boxes/400 meals) per pallet. Trained food service Marines, are required to prepare the UGR-B. The UGR-B will replace the UBR upon depletion of the UBR stock.

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## Enhancements and Supplements

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An enhancement is the subsistence item added to the meal for nutritional purposes (fresh fruits and vegetables, milk, and bread, etc.). A supplement is the authorized monetary allowance to be added to the cost of the meal for procurement of the enhancement items.

For security and safety purposes, A-ration enhancements that are not provided by a DSCP-approved prime vendor must be certified as an approved source of supply before procurement. Local procurement of food will not be made without coordination and approval of a veterinary service team or Navy PMU.

A-ration enhancements are perishable items that require refrigeration and increase transportation, fuel, equipment, and water requirements. The workload, liquid and solid waste disposal, and sanitation requirements for food service personnel are also increased. Concurrent with the intro-

duction of perishable rations into the theater of operations, refrigerated transportation and storage assets are required from the receiving theater subsistence distribution activity to the using field mess. Refrigeration sources include existing T/E assets (organic tactical refrigeration, refrigerated International Organization for Standardization [ISO] containers from maritime prepositioning ships[MPS], and contracted refrigeration).

## Enhancements to POR

A-ration enhancements are authorized for use with POR (MRE, RCW or MCW) only when PORs are the sole daily diet. A-ration enhancement items will be limited to hot/cold beverages, soups, fresh fruits, and/or vegetables. The amount of monetary supplement authorized for POR enhancements is limited to 8 percent per POR box cost. The cost of the BSS and UHT milk is not included in the authorized 8 percent supplemental allowance. Although BSS is not packaged in the POR box due to limited space, it is considered a component, rather than an enhancement, to the POR.

## Enhancements to Unitized Rations

When tactical, operational, and logistical situations permit, A-ration enhancements may be added to UBR, UGR-B, and UGR-H&S meals to provide a complete menu. Authorized A-ration enhancements consist of bread, milk, cereal, fresh fruits, vegetables, etc. The supplemental allowance of the enhancements will not exceed 15 percent of the module cost of the primary ration consumed. Overseas exercises that must pay a higher cost for enhancement items are authorized a supplemental allowance not to exceed 25 percent of the module cost of the primary ration consumed. BSS and UHT milk costs are not included in the 15 percent (CONUS) and 25 percent (OCONUS) supplemental allowance for exercises.



## Bread, Shelf Stable and Ultra High Temperature Milk

Bread and milk must be available with each unitized ration meal. Bread may be pouched or fresh, milk may be UHT or whole milk. Two half-pint containers of milk are served for breakfast with cereal and one half-pint container is served for lunch and/or dinner. BSS and UHT milk should be used before fresh commercial items.

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## Individual Ration Heating Devices

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There are three individual ration heating devices available for Marines to heat POR entrée packets, dehydrated entrées in the RCW and MCW, and water for instant soups and beverages. These devices are the canteen cup stand, RSFH, and FBT.

### Canteen Cup Stand

This reusable, lightweight, aluminum stand fits over the standard canteen cup for travel. The stand allows the Marine to heat the POR entrée by immersing it in a canteen cup of hot water. Water is heated by the standard FBT heat tablet or, if necessary, any other combustible material. The stand can also be used to heat water for soups, beverages, and dehydrated entrée items.

### Ration Supplement, Flameless Heater

The RSFH is a water-activated, exothermic, chemical heating pad. It is packaged with each MRE to heat the main entrée items. It is listed in Federal Supply Catalog 8900-SL and may also be requisitioned (in bulk pack) separately. See chapter 6 for storage and issue procedures.

## Fuel Bar, Trioxane

The FBT is a compressed, solid fuel bar used for heating water in a canteen cup. An MRE entrée can be placed in the canteen cup for heating or the heated water can be used for POR hot beverage mixes and hydrating of the MCW and RCW entrées. Packaged three bars per box, each bar will burn approximately 7 to 9 minutes. If individual heating devices are not available, each MRE requires one fuel bar with each meal for heating beverages. Each MCW and RCW requires two fuel bars for heating water to hydrate components and beverages.

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## Health and Comfort Pack

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The DC, I&L, Logistics Plans, Policies, and Strategic Mobility Division, Logistics Capabilities Center, Supply Chain Capabilities Team (LPC-3) is responsible for policy guidance on the acquisition of health and comfort packs (HCPs). The HCP is classified as a gratuitous item under Class I vice Class VI (personal demand/nonmilitary sales). An HCP is a Service contingency item designed to provide health and comfort items for male and female personnel. HCPs are delivered into theater as outlined in DLA Regulation 4145.36, *Operational Rations and Health and Comfort Items*, or until forward area exchange facilities are established. HCPs are not held in peacetime as part of WRM. To meet MAGTF deployment timelines, Commander, Marine Corps Logistics Command provides an initial 30-day requirement for HCPs to DSCP. HCP requirements are calculated/registered during deliberate planning and are based on the initial 30 DOS to support the MAGTF.

# CHAPTER 3

## MCFFP EQUIPMENT

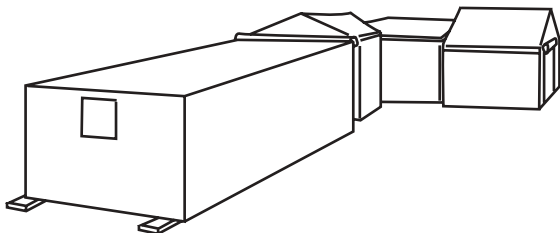
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### Field Food Service System

TAMCN: C5810, NSN: 7360-33-201-2934

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The FFSS is configured within three 8 by 8 by 20-foot shelters (figure 3-1) that meet ISO container dimensions. FFSS shelters do not have the same load capacity or stacking weight as Series One ISO freight containers. The stacking weight for the first 18 systems fielded is 49,600 pounds. All other systems will have a stacking weight of 224,000 pounds for shipboard storage aboard MPS. The FFSS is a combination of the Marine rapid deployment kitchen (MRDK), which is configured within two shelters and the field sanitation unit (FSU) within one shelter. The FFSS is capable of preparing 850 meals during a 4-hour period (this does not include set-up time of approximately 3 hours) twice daily. The FSU provides the capability to properly clean and sanitize food service equipment and miscellaneous food service components while providing sufficient hot water for general sanitation. With the exception of the M1959 field range components identified in the user's logistics support summary (ULSS) for retention, the FFSS replaces the M1959 field range outfit with an M2 burner, field range accessory outfit, and immersion water heater when fielded.



**Figure 3-1. FFSS Deployment.**

### Operational Characteristics

The FFSS will be used to support designated elements of the MAGTF with two hot meals daily. The commander can use the FFSS in expeditionary operations to provide meals that enhance unit morale, performance, and health while meeting nutritional standards identified by the US Navy Bureau of Medicine and Surgery. Meals may be served from the FFSS at the preparation site or placed in insulated food containers for remote feeding. The set up and operating range for the FFSS is from  $-24^{\circ}\text{F}$  to  $125^{\circ}\text{F}$ . The normal allowable range for setup of the FFSS is no more than 5 percent slope. Under extreme conditions it can go as high as 6.5 percent of slope. A slope greater than 6.5 percent will hinder the operational capabilities of the FFSS.

### Physical Characteristics

The FFSS is comprised of three shelters. The weight of each shelter for the first 18 systems fielded is 9,920 pounds; total weight per FFSS is 29,760 pounds. The weight of each shelter for all other systems is approximately 14,000 pounds; total weight per system is in excess of 42,000 pounds.

### Power Requirements

The FFSS requires an external generator or electrical power source to provide electrical power for all operations. The FFSS utilizes three-phase, 120/208 volts, 50/60 hertz (Hz), alternating current (AC), capable of North Atlantic Treaty Organization (NATO) conversion. The FFSS is powered by two 100 kilowatt (kW) 60 Hz or three 60 kW 60 Hz generators typically employed for operational scenarios, as well as conventional commercial power sources.

An electric power distribution buss duct will be fielded separately from the FFSS. The buss duct will enable the system to be powered by either of the 100kW generators, and refrigeration units can be used with the addition of a third 100 kW generator. Additionally, the buss duct enables the system to be powered by three 60kW generators. Electric requirements for the FFSS are as follows.

MRDK (2 containers)	144 kW
FSU Subsystem (1 container)	54 kW
Total*	198 kW
* Note: 198 kW is the maximum electrical power required to support the FFSS when 100 percent of the equipment is in use at the same time. This does not include refrigeration units external to the FFSS.	

## Maintenance

There are two levels of maintenance: operator and contractor logistics support (CLS). Operator maintenance includes proper care, use, operation, cleaning, inspecting, preserving, lubricating, adjusting and testing, replacing parts, minor assemblies and subassemblies as prescribed in the FFSS technical manual. CLS will repair systems that exceed the operator level of maintenance for a period of 60 months.

Gaining commands are responsible for assigning at least two personnel to register and become users of the ARPA website ([www.arpa-ffss.com](http://www.arpa-ffss.com)). Unit website users will be able to update and maintain maintenance logs and purchase parts and supplies for their FFSS.

ARPA Support Service, Incorporated  
6992 N.W. 82 Avenue  
Miami, FL 33166-2765

Phone: 305-477-3992

Fax: 305-477-2339

Toll Free (US): 888-477-7257

E-mail: [service@arpa-ffss.com](mailto:service@arpa-ffss.com)

(Contact Combat Equipment and Support  
Systems Project Officer

Program Manager—Infantry Combat  
Equipment for access:

Commercial 703-432-3331 or DSN 378-3331)

## Other Support Equipment

Employment of the FFSS requires transportation, container handling vehicles and equipment, water capability of 1,200 gallons per 850 personnel per meal, refrigeration units, general purpose tents, food and beverage containers, and gray water disposal containers. Each system will be provided with a pump (SL-3) to push gray water beyond 50 feet or into a gray water storage container.

## Storage

The first 18 systems procured shelter stacking weight is limited to 49,600 pounds. All other systems procured shelter stacking weight will be increased to 224,000 pounds. When preparing the FFSS for shipment, units must ensure that FFSS shelters are not positioned on ship or in container storage yards, where the stacking load imposed exceeds the shelters' maximum stacking weight. On the outside and at the end of each shelter is a Certification for Safe Container data plate that identifies the stacking weight for that FFSS shelter.

## Transportation

The FFSS is transportable by air, land, and sea.

### *Transportability and Naval Integration*

When configured for transportation, the FFSS complies with Department of Transportation guidelines and regulations related to container safety and handling, as well as commercial handling regulations pertaining to ISO containers.

### *Rail Transportability*

The FFSS is rail transportable without damage or degradation to the system. The system is rail transportable in CONUS and NATO countries without restrictions. When loaded on a 50-inch (127-centimeter) high rail car, the FFSS has a dimensional profile within the Association of American Railroads outline diagram and the Gabarit International de Chargement as specified in MIL-STD-1366, *Interface Standard for Transportability Criteria*.

**Aircraft Transportability**

The FFSS meets the minimum requirements of MIL-HDBK-1791, *Designing for Internal Aerial Delivery in Fixed Wing Aircraft*, for C-17, C-141, and C-5 air transport. Although the manufacturer certifies that the FFSS meets air transportability requirements for Naval Air Systems Command (NAVAIR) C-130 and external helicopter lift (CH-53 type aircraft), transport by external helicopter lift and NAVAIR C-130 was not verified and therefore not approved.

**Marine Transportability**

The FFSS is Marine transportable per MIL-STD-1366 and withstands, without damage, the shock, rolling (not to exceed 15°), and pitching (not to exceed 10°) normally experienced on the deck or in the hold of a cargo vessel.

**Ground Transportability**

The Marine Corps’ wheeled medium and heavy tactical transportation fleet can transport the

FFSS. The FFSS is transportable over primary and secondary roads, as well as cross-country terrain. The FFSS allows for movement and handling by container-handling vehicles, and other commercial apparatus designed to accommodate the weight and dimensions of the configured system.

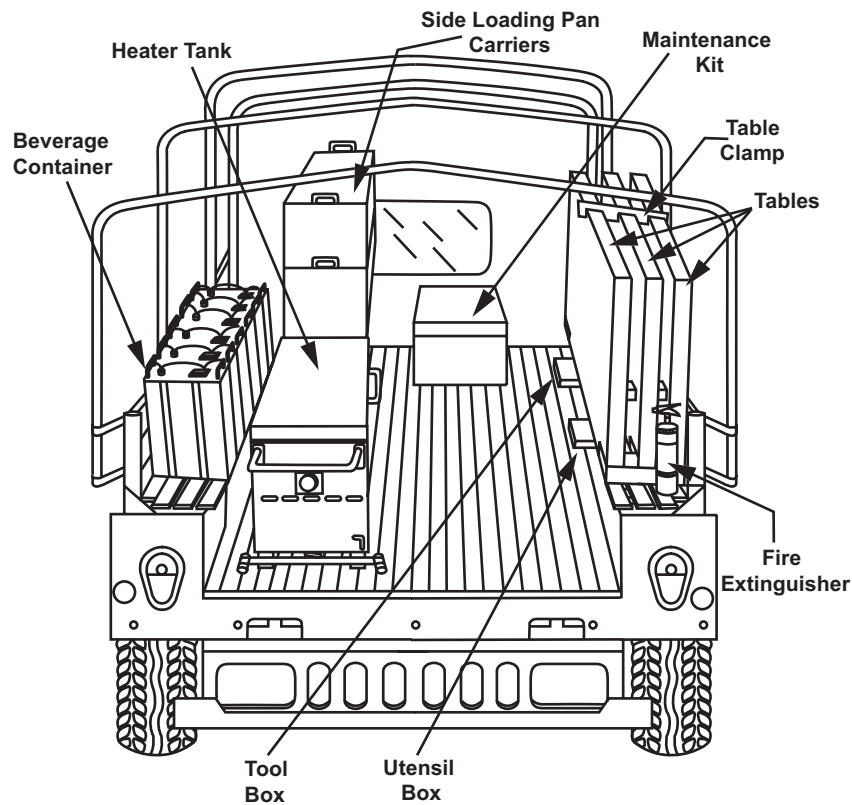
Technical Manual (TM) 10879A-12, *Field Food Service System*, and the ULSS provide detailed information on the fielding, system requirements, operation, maintenance, and safety procedures for the FFSS.

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**Tray Ration Heating System**  
**TAMCN: C6621, NSN: 7310-01-295-7479**

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The TRHS (figure 3-2), TAMCN: C6621, NSN: 7310-01-295-7479, is comprised of a tray ration heater (TRH) and associated collateral and support equipment that compose a component of the



**Figure 3-2. Tray Ration Heater View.**

MCFFP. When installed on a HMMWV cargo carrier, the TRHS is a fully mobile system with heat-on-the-move capability. The TRHS is capable of preparing 250 UGR-H&S rations per meal in remote areas or 500 meals in a ration day with replenishment. The system also supports nonmobile feeding requirements. The purpose of the TRHS is to bridge the gap from the use of MREs to the operational field mess. The TRHS consists of a stainless steel hot-water tank and a multi-fuel, airtronic burner that operates from an external fuel source (5-gallon can). The airtronic burner will operate for approximately 10 continuous hours on 5 gallons of fuel. A thermodisc maintains a water temperature between 180°F and 200°F. The TRHS will heat 18 tray packs or 12 tray packs and five #10 cans at a time to serving temperature in about 40 minutes. When installed on the HMMWV cargo carrier, the TRHS uses vehicular electrical power. If the TRHS is not HMMWV cargo carrier-mounted, it can be plugged into any 120 VAC, 60 Hz source. It is designed to operate effectively in cold weather down to -25°F.

The TRHS can be fully installed on a HMMWV cargo carrier without materials handling equipment (MHE). Easily installed, ratchet-operated tie down straps secure the TRH as well as the collateral equipment. Each TRHS is equipped with support items including serving tables, serving utensils, insulated beverage containers, side-loading pan carriers, can opener, and a rain cover kit.

When the HMMWV cargo carrier arrives at the feeding location, serving tables and equipment are deployed, and a serving line is established. Hot tray packs are taken from the heater or side-loading pan carriers, opened, and served. TM 09211A-14 & P/1, *Operation and Maintenance Manual for the Tray Ration Heating System*, provides detailed information on the operation, maintenance, and safety procedures for the TRHS.

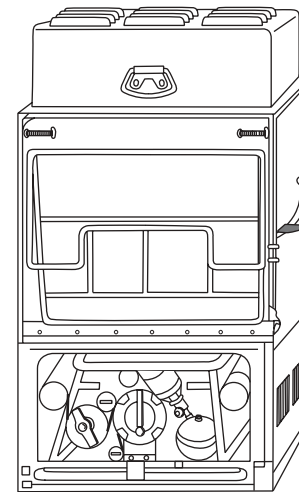
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## Field Mess Equipment

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**Range, Outfit, Field, Gasoline,  
Model M59 w/M2 Burner and Accessories  
TAMCN: C5820, NSN: 7360-00-082-2153,  
TM 10-7360-204-13P w/Ch 10 AB**

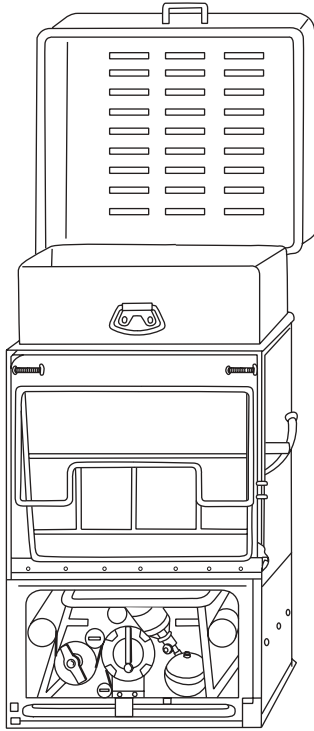
The M59 field range outfit (see figure 3-3) is portable and can be adapted to many different cooking configurations. One field range outfit may be used to cook for up to 50 people. Field ranges can also be grouped together to cook for more than 50 people. Each field range comes with pots, pans, and cooking and serving utensils. One accessory kit is authorized for every two ranges (see figure 3-4).



**Figure 3-3. M59 Field Range Outfit w/M2 Burner.**

The M59 field range can be used to bake, roast, boil, grill, and deep-fat fry foods by putting the burner unit in the correct position. The range may also be used as a hot line or steam table. The burner unit can be used in either the top or bottom position. Figure 3-5 shows the field range

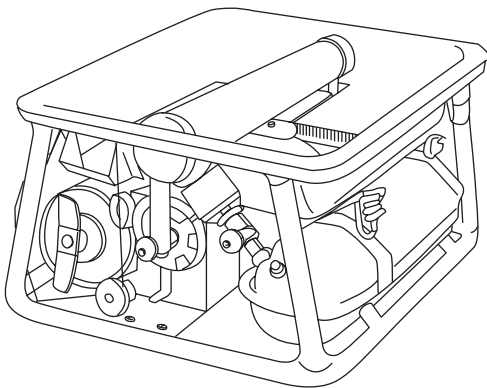




**Figure 3-6. M59 Field Range w/M2 Burner in Bottom Position.**

### M2 Burner Unit

The M2 burner unit (see figure 3-7) is the heat source for the M59 field range. The M2 burner unit has a U-shaped fuel tank. The mess chief must ensure that the cooks operate burner



**Figure 3-7. M2 Burner.**

units safely and in a manner that protects the environment. They must be trained in fire prevention and control.

### *Fire Prevention and Environmental Protection*

Ensure that all personnel follow these rules when operating the M2 burner unit:

- Make a firm, level, and well-drained foundation, free of combustible material, for the range.
- Ensure that the burner unit is at least 50 feet from any open flame before filling.
- Locate the gasoline storage area 50 feet from the field mess tent.
- Never pressurize the tank while the flame is burning or when the burner is hot, as escaping gasoline vapors will ignite.
- Wipe up spilled fuel on the burner unit. Vapors from spilled fuel can catch fire or explode if they contact the burner flame or heat from a hot burner.
- Do not permit fuel spills to absorb into the ground. Place contaminated dirt in plastic bags for retrograde and disposal.
- Do not operate the burner unit when the pressure gauge reaches or exceeds 25 pounds per square inch (ppi).
- Do not operate a burner unit with a pressure gauge that has not been equipped with the correct safety color code indicator (green 0 to 25 ppi, yellow 25 to 35 ppi, and red 35 to 60 ppi).
- Do not operate the M2 burner unit with a cracked or broken lens on the air pressure gauge.
- Do not tighten joints while the burner unit is in operation.
- Never put more than one burner unit in the M59 range.

### *Fire Fighting*

All personnel must know what to do if an uncontrolled fire starts while using the M2 burner unit. If an uncontrolled fire starts—

- Try to close the flame valve. Once closed, pull the burner unit from the range cabinet. If the

flame valve cannot be closed, use a fire extinguisher to put out the fire in the cabinet.

- Remove the burner unit from the kitchen after the fire is out.
- Release the air pressure from the fuel tank by loosening the fuel tank filler cap after the unit cools.

**WARNING**

**Do not operate the burner in an unventilated space. Buildup of carbon monoxide gas could lead to injury or death.**

TM 10-7360-204-13&P, *Range Outfit M-59*, provides detailed information on the operation, maintenance and safety procedures for the M59 field range w/M2 burner and the field range accessory outfit.

Container, Food, GB-7 TAMCN: C4881, NSN: 7330-01-484-6756, TM 10757A-12 and P

Insulated food containers (see figure 3-8) are used to keep foods hot or cold.

**Characteristics**

- Maintain temperature for a 4-hour period.
- Capable of holding 7 gallons of liquid.

**Preheating**

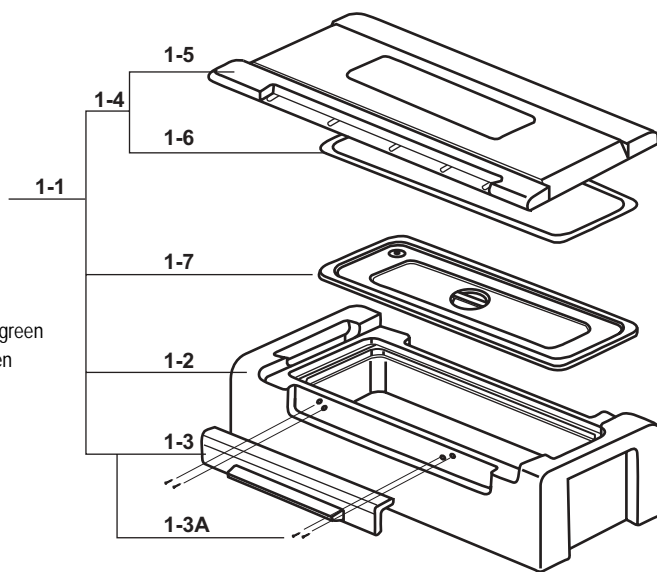
- Pour 2 quarts of hot water into the container.
- Let stand for at least 15 minutes.
- Close the container lid and secure the latches.
- Drain water.
- Put hot food in the transporter and replace the cover.
- Close and fasten the container lid by securing the latches.

**Chilling and Filling**

Before cold food can be placed in the container, the following procedure is performed:

- Put crushed ice or two quarts of ice water in the container.
- Close the container lid and secure the latches.
- Let stand for 30 minutes.

NSN	Item Identification
1-1	7330-01-484-8988 Container, Food, Molded in Stainless Steel liner, NATO-green
1-2	7330-01-490-0720 Container, Lower Half, Stainless Steel Liner, NATO-green
1-3	5310-01-487-6092 Clamp, Pullover, Stainless Steel
1-3A	N/A Screw, Stainless Steel, M5x8
1-4	7330-01-490-0718 Lid Assembly, Outer, with Gasket, NATO-green
1-5	N/A Lid, Outer, NATO-green
1-6	5330-01-487-6529 Gasket, Seal, Out Lid
1-7	7330-01-490-0719 Lid, Inner, Stainless Steel, with Gasket



**Figure 3-8. Insulated Food Container (7-Gallon).**



- Pour ice or water from the container.
- Put food in the container and fasten the lids.
- Close and fasten the container lid by securing the latches.

### Labeling Containers

When filled, each food container is labeled on the container, with the menu item, number of servings, date, time the item was placed in the container, and "Consume by or Discard" (fill in the time; 4 hours after the container was filled) on the tape.

### Cleaning the Container

The insulated food container and the inserts are cleaned before and after every use. Inserts and

gaskets are removed and washed in hot, hand-dishwashing compound solution; the parts are rinsed and sanitized in water at least 170°F to 180°F. After washing the gaskets from the food container, allow them to air dry.

### Container, Beverage, GB-3

TAMCN: C4546, NSN: 7330-01-484-8988,  
TM 10756A-12 &P

The 5-gallon beverage container (figure 3-9) is a SL-3 component of the TRHS. The 3-gallon, GB-3 beverage container (figure 3-10) is to be used for all other liquid dispensing requirements. Both will be cleaned in accordance with the guidelines for the food containers.

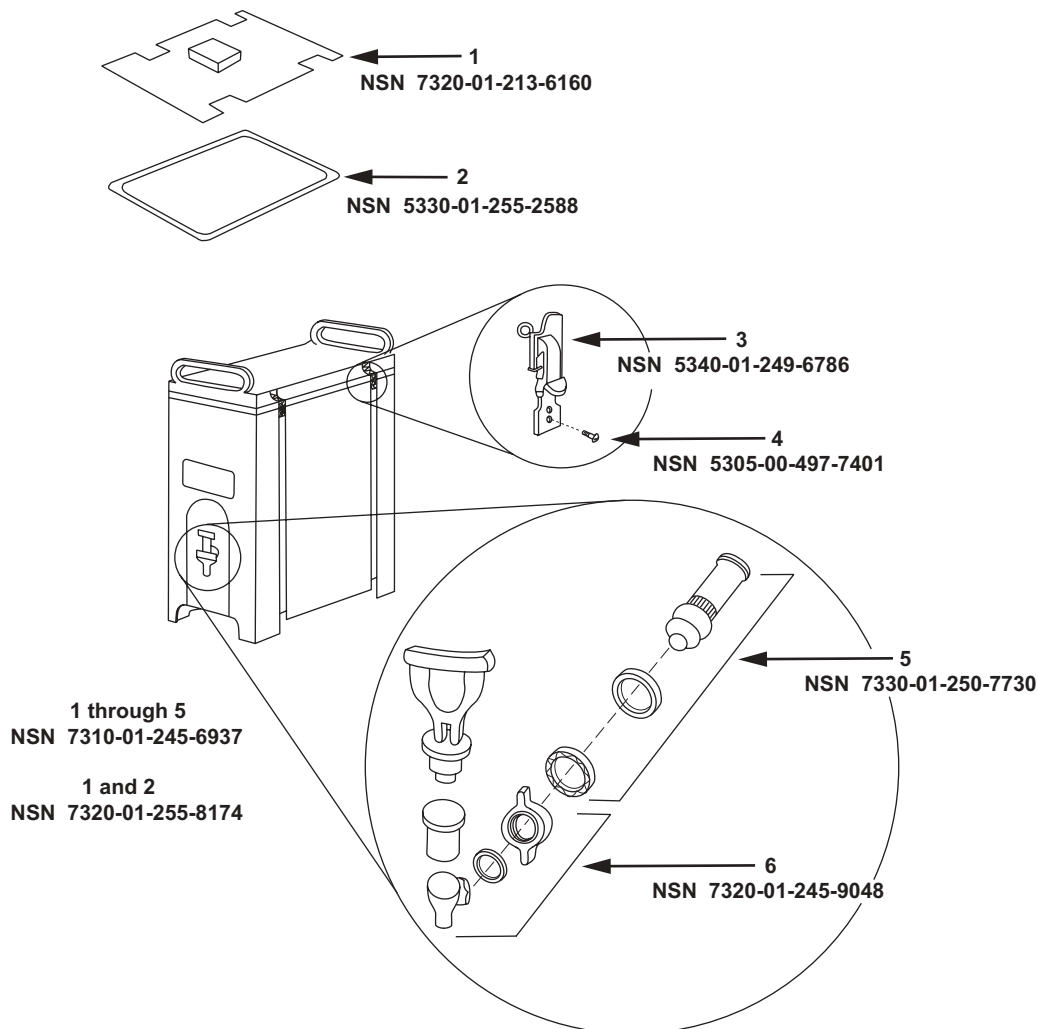
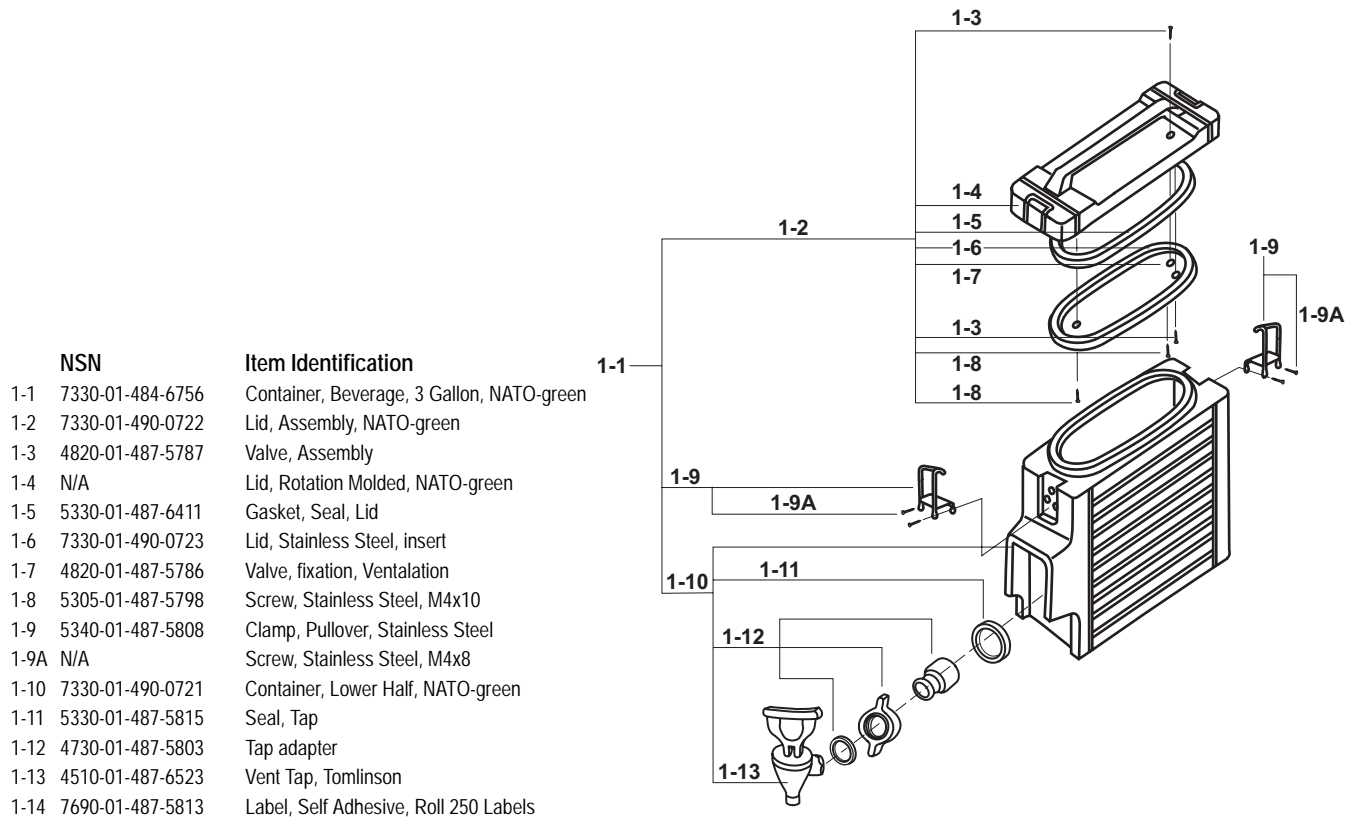


Figure 3-9. Insulated Beverage Container (5-Gallon).



**Figure 3-10. GB-3 Insulated Beverage Container (3-Gallon).**

**Generator Set, Skid Mounted,  
Model Mobile Electric Power-007B  
TAMCN: B1045, NSN: 6115-00-036-6374,  
TM 074648-12**

The model mobile electric power (MEP)-007B is a self-contained source of AC electrical power. A 100 kW synchronous, brushless generator is directly driven by a turbocharged, six-cylinder diesel engine. Both the engine and generator are mounted on a welded I-beam skid base and contained within a steel-paneled housing enclosure. The generator set is provided with the controls, instruments, and accessories necessary for its operation, monitoring, and control. An MOS 1345 (Equipment Engineer Specialist) is required to start and maintain this generator. This generator and/or the MEP-806B tactical quiet generator are key elements of the field mess, and planning

guidance should be addressed with utilities personnel prior to the set up of any field mess.

**Generator Set, Skid Mounted, Tactical Quiet,  
MEP-806B TAMCN: B1021,  
NSN: 6115-00-462-0291, TM 09244A**

The MEP-806B is a fully enclosed, self-contained, skid-mounted, tactical quiet 60kW 50/60 Hz portable unit. It is equipped with controls, instruments, and accessories necessary for operation as a single unit or in parallel with another unit of the same class and mode. It requires an MOS 1345 to set up, start, and maintain this generator. This generator is a key element of the field mess, and planning guidance should be addressed with utilities personnel prior to the set up of any field mess.

### Heater, Immersion, Liquid M-67

TAMCN: C4980, NSN: 4540-00-469-6593,  
TM 5-4550-202-12&P w/Ch 6

The M-67 water heater is maintained, set up, and operated by food service personnel. It provides many units within the Marine Corps with hot water for field sanitation. The FSU will replace the immersion water heater.

### Refrigerated-Container, Field, 8 by 8 by 10 Feet

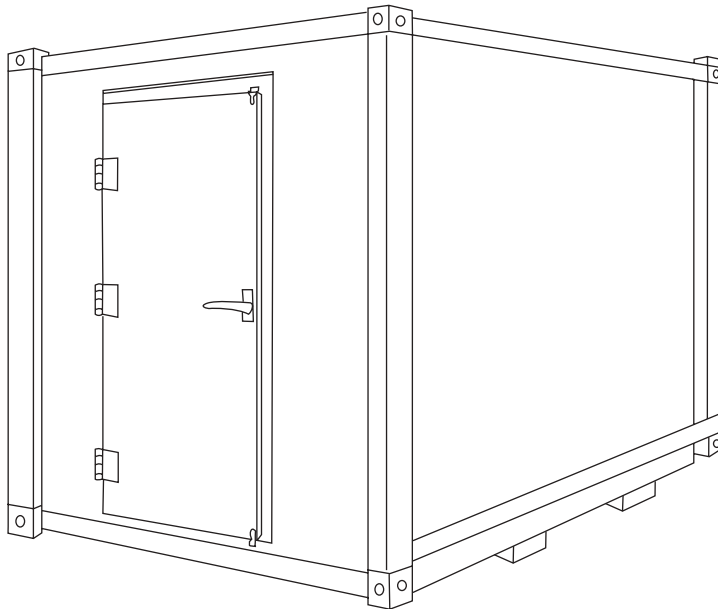
TAMCN: B1710, NSN: 4110-01-107-9078,  
TM 08407A-13/1

The refrigerated container is an insulated 350 cubic foot capacity container without a refrigeration unit (see figure 3-11). The overall refrigerated container assembly is a one-piece, welded-steel frame with permanently assembled, riveted-aluminum alloy panels. It contains:

- Sixteen 18- by 42-inch wire shelves. Two sets of four shelves are arranged against the right interior wall, and two sets are arranged against the left wall.

- Four tie-down rings are mounted on the interior left and right walls to aid in securing items.
- Two drains are provided in the floor of the container.
- A thermometer is mounted on the exterior front panel near the left side of the door assembly.
- A light bulb switch is mounted on the exterior front panel that controls a 100-watt incandescent bulb in the container. The switch includes an incandescent light.

The container may be lifted by crane or forklift. It should be placed on a flat level surface or platform capable of withstanding 250 pounds per square foot. It is advisable to pick a shaded area to increase the efficiency of the refrigerator. The enhanced refrigeration unit (ERU) will fit into the cavity on the back wall of the container. A 208/230 volt, 50/60, three-wire cable is required (provided by the user) to power the receptacle on the back wall of the container for the lighting circuit. This unit is usually located with the engineers or utility personnel of a unit and is task-organized when needed.



**Figure 3-11. Refrigerated Container, Field.**

**Enhanced Refrigeration Unit, 4,500 BTUs,  
Model VM405 Max EL  
TAMCN: B1645, NSN: 4110-01-468-9792,  
TM 10673A-10/1**

The ERU must be operated by MOS 1161 (Refrigeration Mechanic) personnel. Food service personnel will ensure temperatures are monitored and recorded in accordance with the Navy Medical Directive (NAVMED) P5010, *Manual of Naval Preventive Medicine*. Characteristics, capabilities, and features follow.

- Provides refrigerated or heated air for an enclosed space.
- Maintains temperature of enclosure at any setting between 0°F and 40°F, in ambients of -65°F to 125°F.
- May be mounted in any 8 by 8 by 10-foot field container.
- Operational weight is 474 pounds and designed to be highly portable and easily installed. ERUs have lifting slots that allow for the use of a forklift during installation of the refrigeration box.
- Electric, motor-driven, and requires a 208/230 volt, 3-phase 60 Hz or 200 volts, 2-phase 50 Hz. The ERU operates on tactical or commercial power.
- Uses R-404a as its refrigerant.
- Equipped with an automatic defrost cycle to prevent excessive buildup of frost and ice on the evaporator coil.
- One piece condenser/evaporator refrigeration unit.

# CHAPTER 4

## DEPLOYMENT PLANNING

Food service support is an essential part of any unit deployment. Food service planning should be subject to the same level of deliberate planning. It should parallel other planning efforts and coincide with operational phasing events. Commanders should ensure that deployment plans specify the earliest possible movement of personnel, equipment, and basic loads of rations. Deployment planning begins with forecasting requirements. Food service planning in hostile environments must be tailored to support the tactical situation along the entire operational continuum. It must maintain a high level of satisfaction for Marines subsisting in the field. Mission-specific requirements must be identified early in the process.

Commanders, operations planners, logisticians, and FSOs must determine Class I requirements that will satisfy tactical needs in the deployment planning process. When a theater is initially activated or if hostilities arise, all Class I distribution system components may not be in place. Units may not have the luxury of choosing the rations they will consume. The operation plan (OPLAN) and the approved feed plan will identify when distribution units and equipment will become operational and when each type of ration will be available for issue.

Deployment of theater subsistence distribution activities and subsistence platoons should begin at the onset of theater operations. These personnel, their equipment, and transportation assets should be in place to receive and forward the subsistence required to sustain the force. Their locations should be planned and coordinated for compatibility with the overall layout of the theater distribution system. The FSO and unit mess chiefs should advise commanders (at each level) of any special requirements during initial planning phases. The MCFPP permits food service

operations in a variety of tactical situations, but they must be curtailed in nuclear, biological, and chemical (NBC) environments.

To establish Class I support in theater, units deploy with a basic load of MREs. The TRHS/FFSS should be implemented in the feed plan as soon as possible. Additional factors included in operational planning are environmental protection, fuel, water, ice, waste disposal, subsistence inspections, residuals, sanitation inspections, refrigeration requirements, transportation of Class I and convoy support. Marine Corps Forces, Pacific Order P10110.2/Marine Corps Forces, Atlantic Order P10110.2, SOP for Food Service, is an excellent resource guide for food service planning and operating stages of expeditionary and tactical feeding operations. The checklist in appendix A should be used for deployment planning.

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### Host-Nation Feeding

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One of the first planning factors to consider is host-nation feeding. Host-nation feeding consists of four categories: food service host-nation support (HNS) and host-nation messing (HNM), contract feeding, and field support. When feasible, MAGTF plans should make maximum use of HNS available within the theater of operations. HNS can augment MAGTF elements' organic food service capabilities; however, HNM and contract feeding is not a substitute for essential MAGTF organic capabilities and should be considered when organic capabilities are not feasible.

Written agreements of support and payment for all HNM/contract feeding, and approval of a funding source will be accomplished prior to support being provided.

## Host-Nation Support

An HNS agreement may be entered into by the US government and friendly host nations. There are two types of HNS agreements: wartime and peacetime. Food service HNS consists of selected subsistence items procured from the local economy and prepared by Marine Corps food service personnel. Generally, items consist of A-ration enhancements (produce, milk, bread) and are used to enhance unitized rations and PORs. If a unit anticipates the need for HNS, it must notify the appropriate headquarters to ensure that a current agreement is in effect. The applicable HNS agreement letter that specifies support and reimbursement must be submitted with the unit's Quarterly Subsistence Financial Report (QSFR). The unit receiving HNS must ensure all billing documents are retrieved before departing the host nation. All subsistence provided by a host nation must be inspected by US Army veterinary personnel.

## Host-Nation Messing

HNM consists of bulk food purchased for US military organizations (as opposed to individual servicemembers), with the host nation or contractor providing the food and its preparation. HNM involves Marine Corps personnel subsisting in a host-nation facility in which the Marine Corps will reimburse the host nation for the meals provided. HNM differs from HNS in that the Marines actually receive full messing support in a foreign military or civilian dining establishment and, in most cases, no food service Marines or attendants are needed. Units requiring HNM must identify the requirement 90 days before support is provided. Procedures to obtain billing documents must be coordinated with the host nation early in the planning process to ensure that all paperwork is compiled in a timely manner at the end of the operation or exercise.

## Contract Feeding

At times, units will operate in areas where a civilian contractor or host nation government provides

meals through CLS agreements. Contract feeding is any feeding that is prepared by a contractor (CONUS/OCONUS) or host nation government outside the Service's mess hall, where individual meals are provided. This method of feeding Marines should be used only when all efforts to obtain subsistence support from other military/host-nation sources have been exhausted. An authorized US federal contracting agent/contingency contracting officer, usually at a military installation or embassy nearest the feeding site, must negotiate contract-feeding requirements. All nonfood costs incurred by the contractor (labor, equipment, materials, etc.) must be paid for with unit operation and maintenance, Marine Corps (OMMC) funds. The subsisting unit collects all accounting data pertaining to the subsistence operation before departing the AO.

## Field Support

This method of feeding is when the contractor or host nation procures only bulk food from an approved source of supply. The military Services set up a field mess and prepare their own meals.

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## Unit Preparation

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### Manpower Requirements

Actual staffing of food service Marines and attendants is related to the type of operation, feed plan, and rations.

### *Support Structure*

- CE and GCE—Structured to provide organic support for TRHS feeding.
- ACE—Structured to provide organic support for TRHS and FFSS feeding.
- CSSE—Structured to provide organic support for TRHS and FFSS feeding. Additionally, when tasked by higher headquarters, provides FFSS support, including all equipment and personnel to CE/GCE.

- Food Service Marines—To be determined by unit subject matter expert (FSO/food technician) dependent on the feed plan, type of rations, equipment, location, and numbers of stationary/remote feeding sites.
- FFSS Operations—Sixteen Marine food service specialists, MOS 3381, per FFSS. For specific structure, by grade, see unit T/O.
- TRHS Operations—Three Marine food service specialists, MOS 3381, and one driver, per TRHS. For specific structure, by grade, see unit T/O.

Other manpower considerations supporting the FFSS include the following MOSs:

- 1141, Electrician.
- 1142, Electric Equipment Repair Specialist.
- 1161, Refrigeration Mechanic.
- 1171, Hygiene Equipment Operator.
- 1181, Fabric Repair Specialist.
- 1345, Engineer Equipment Operator.
- 3531, Motor Vehicle Operator/Field Mess Attendants—One mess attendant per 25 personnel being supported. In accordance with MCO P1000.6G, *Acts Manual*, Marine food service specialist, MOS 3381, will not be assigned meal verification, cash collection or mess attendant duties.

### Shipboard Staffing

Shipboard staffing guidance of an assignment ratio of Marine food service specialists to support Marines embarked is currently under revision. The food service MOS does not possess the structure to staff above the requirement of 1 food service specialist per 72 Marines embarked. Staffing above this ratio will not allow commanders to provide food service support to other operational mission requirements.

### Equipment Requirements

Equipment requirements are largely determined by the number of personnel supported (see table 4-1).

**Table 4-1. Equipment Requirements.**

Nomenclature	Ratio	
	Equipment Quantities	Personnel
Food Containers	1	25
Range Outfits w/M-2	1	50
Accessory Outfits	1	(per 2 range outfits)
Container, Beverage (3 gal)	1	25
Container, Beverage (5 gal)	1	40
Tents G/P Medium	1	125
ERU 4-E W/350 cubic feet	1	250
Refrigerator	1	250
Water Trailer, 400 gal	1	250
TRHS	1	250
FFSS	1	850

Repair or replacement of T/E gear (Class IX) is determined by the age of the equipment, hours of operation, handling during transportation, and how well the maintenance program has been performed. Table 4-2 shows the average life expectancy of field equipment.

**Table 4-2. Average Life Expectancy of Field Equipment.**

Equipment	Average Life Expectancy
M-59 Range Cabinet	Indefinite
M-2A Burner	10 years
Generator for M-2A	450-500 operating hours
Immersion Water Heater	10 years
Food Container	5 years
Container, Beverage	5 years
TRHS	10 years
FFSS	10 years

### Fuel Requirements

To feed 700 Marines for 7 days (two hot meals, UBR/UGR-B or UGR-H&S) the amount of fuel is determined by using the following guidelines:

#### FFSS

One per 850 personnel. Fuel is required for generators.

#### M-2 Burner

One per 50 personnel

700 Marines by 50 = 14 M-2 burners

14 M-2 burners x 2 gal = 28 gal per meal

28 gal x 14 meals = 392 gal

#### TRHS

One per 250 personnel

700 divided by 250 troops (per 90 minutes) =

2.8 x 90 = 252 minutes

252 minutes divided 60 = 4.2 hours

4.2 hours x 14 meals = 58.8 (59) hours

5 gallons of fuel will burn continuously for approximately 10 hours.

59 divided by 10 = 5.9 (5 gallons of fuel) or 30 gallons

The 30 gallons of fuel will support 59 hours of continuous burning. The TRHS will automatically shut off and turn on when the switch is placed on automatic, allowing for more than 10 hours of use. The estimated 90 minutes per 250 servings is based on using multiple feeding sites.

### Class IX Requirements

Pre-expendable bin (PEB) requirements can be authorized by unit commanders. The PEB is applied to the operating cost of the exercise. Table 4-3 contains items requiring consideration for a PEB.

**Table 4-3. Items Requiring Consideration for a PEB.**

Type of Equipment	Class IX		
Ranges/ M-2A Burners	<ul style="list-style-type: none"> <li>• Generators</li> <li>• Pre-heaters</li> <li>• Air input valves</li> <li>• Drain plugs</li> <li>• Retaining springs</li> <li>• Air pressure gauges</li> <li>• Air pumps</li> </ul>		
Accessory Outfits	Cover gaskets		
Container, Beverage	Faucet assemblies/gaskets		
TRHS	<table style="width: 100%; border: none;"> <tr> <td style="vertical-align: top; width: 50%;"> <ul style="list-style-type: none"> <li>• Airtronic burner (complete)</li> <li>• Assorted filters (air and fuel)</li> <li>• Assorted gaskets (lid, front mounting plate, fuel sump, compressor, air filter, etc.)</li> <li>• Assorted O-Rings (atomizing chamber, compressor, cross-over tube, etc.)</li> <li>• Power cords</li> <li>• Misc hoses</li> <li>• Electronic troubleshooting box</li> <li>• Low level sensors</li> <li>• Photo cell power cord</li> <li>• Probe sensor</li> <li>• Thermodisc</li> </ul> </td> <td style="vertical-align: top; width: 50%;"> <ul style="list-style-type: none"> <li>• Fuel line</li> <li>• Fuel pump</li> <li>• Assorted screws, nuts and bolts (flathead, locking nuts, hex cap screws, etc.)</li> <li>• Assorted pins (retainers, cotter pins, clips, etc.)</li> <li>• Compressor air line</li> <li>• Hose clamps</li> <li>• Fluorsilicone membrane</li> <li>• Photo cell light socket</li> <li>• Spare igniter</li> <li>• Mercury tilt switch</li> </ul> </td> </tr> </table>	<ul style="list-style-type: none"> <li>• Airtronic burner (complete)</li> <li>• Assorted filters (air and fuel)</li> <li>• Assorted gaskets (lid, front mounting plate, fuel sump, compressor, air filter, etc.)</li> <li>• Assorted O-Rings (atomizing chamber, compressor, cross-over tube, etc.)</li> <li>• Power cords</li> <li>• Misc hoses</li> <li>• Electronic troubleshooting box</li> <li>• Low level sensors</li> <li>• Photo cell power cord</li> <li>• Probe sensor</li> <li>• Thermodisc</li> </ul>	<ul style="list-style-type: none"> <li>• Fuel line</li> <li>• Fuel pump</li> <li>• Assorted screws, nuts and bolts (flathead, locking nuts, hex cap screws, etc.)</li> <li>• Assorted pins (retainers, cotter pins, clips, etc.)</li> <li>• Compressor air line</li> <li>• Hose clamps</li> <li>• Fluorsilicone membrane</li> <li>• Photo cell light socket</li> <li>• Spare igniter</li> <li>• Mercury tilt switch</li> </ul>
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## Water Requirements

The water capacity of the empty TRHS is 30 gallons. When tray packs are inside the TRHS, the approximate amount of water required for proper heating is 10 gallons. When using the UBR, an average of 75 gallons of water per day (two hot meals) is required to prepare food and beverages for 100 people. When using the UGR-B, an average of 25 gallons of water per day (two hot meals) is required to prepare food and beverages for 50 people. Additional water is required for general sanitation, and cleaning and sanitation of field food service equipment and utensils.

## Ice Requirements

The planning factor for potable ice is based on 6 pounds per Marine per day in a temperate climate, and 11 pounds per Marine per day in an arid climate. Although ice is Class I, it will not be purchased with subsistence funds; operational or exercise OMMC funds will be used.

## Security

Procedures for securing subsistence, supplies, funds, and equipment must be established in advance and include requirements for special items such as concertina wire or locks, and duties of guard personnel patrolling subsistence and supply stocks.

## Records and Logs

Food service personnel should maintain records of training, equipment (maintenance and replacement), ration accounting, personnel supported, and after action reports.

## Equipment Status

Equipment status should be determined before notification of a deployment or operation. All

required replacement parts and equipment are ordered as the need is identified.

## Training

Food service specialists, MOS 3381, must be trained to operate effectively within the MCFPP. Training should include a working knowledge of the operation and maintenance of T/E, subsistence requisitioning, receipt and storage of subsistence, accountability, issue and distribution procedures, safe food handling, preparation and serving, environmental stewardship responsibilities, sanitation procedures, and retrograde. Military skills unit training should include map reading, convoy operations and security, rear area security, crew-served weapons, and patrolling.

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## Unit Deployment Database

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### Unit Deployment Listing

There is a distinct difference between the automated information system (AIS) garrison database plan and the unit deployment list (UDL). The garrison database lists all T/E assets and their containers, but the UDL shows only those the unit will deploy to meet the logistics needs of the unit commander. The end product shows the unit lift footprint and provides visibility of all the MAGTF's food service equipment.

### Automated Information System for Deployment Support

Unit AIS contains deployment databases to identify lift requirements. The unit AIS garrison databases reflect all T/E assets to include embark boxes and containers on hand at the unit level. Depending on the level of information detail maintained by the unit, the database may include the NSN, item ID, and the package ID.

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## Class I Distribution System

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### Push System

A push system is used to initially fill the supply pipeline during conflict. During limited duration or high-intensity conflict, the push system may be used exclusively without conversion to the pull system. Under a push system, the materiel management center and/or the planning cell determine the type and quantities of rations to be shipped to each Class I supply point. Types and quantities of rations ordered and shipped under the push system are based on anticipated troop strength, unit locations, type of operation, and feeding capabilities. A push system ensures that rations are available in the operational area. However, a sufficient quantity of the type rations desired may not be in the correct location to support units, and units have limited control over the type of rations sent to them.

### Pull System

MCFFP policies and procedures are based on a pull system. A pull system has the lowest user element placing a demand on the Class I supply system. Subsistence is sent forward to satisfy the request from the user element. A pull system provides tighter control of available subsistence, while being responsive to the user.

### Distribution Variances

The actual Class I distribution system may differ from one unit's mission or deployment to another. Factors to consider include Class I supply point locations, issue schedules, method of distribution (unit or item pile), and Class I issue times (day or night). Specifics of the Class I distribution system for deployment planning are also available from various unit documents, such as annex D, (logistics) of the operation order (OPORD) or letters of instruction and directives.

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## Hot Weather Field Feeding

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With temperatures exceeding 140°F under tents during the lunch hours, cooking and serving food could produce heat casualties. Because of the extreme heat, M-2 burners are not filled until they are ready to be used. Continuous maintenance is required to reduce malfunctions of equipment due to sand and dirt. Marine Corps Warfighting Publication (MCWP) 4-11.6, *Bulk Liquid Operations*, contains water planning factors based on unit size and climatic conditions.

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## Cold Weather Field Feeding

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When preparing meals in cold weather conditions (32°F or below), preventive maintenance and adequate deployment testing of all equipment are critical and must not be neglected. The failure rate of equipment increases in extreme cold environments, causing a need for more repair parts. Food service Marines require additional time and assistance in preparing rations and performing other tasks in extreme cold weather environments. This time requirement must be included in all planning. At temperatures below -20°F, maintenance requires up to five times the normal amount of time. Daylight is also limited in extreme cold weather climates. The minimum caloric requirement for Marines operating in an extreme cold weather environment is 4,500 calories per day. This may be satisfied by using either, one RCW or three MCW (each 4,620 Kcal (kilocalorie)/day) or four MREs (5,000 Kcal/day). Menus must be designed to allow for the increased calories required.

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## Unit Movement

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Food service personnel may be required to serve meals or warm and cool beverages for convoy rest halts, railheads, and staging areas. Planners should ensure appropriate food service assets

accompany the unit and are on hand at the reception site.

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## Class I Site Selection

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Each Class I point must be accessible to its supply sources and customer units. Depending on METT-T factors, Class I distribution points may be collocated with water points. An area with cover and good drainage is selected near the main supply route; permanent buildings should be used when possible. Roads should be able to handle heavy traffic in a variety of weather conditions and be wide enough for the supply vehicles. The ground where rations are positioned must be able to support their weight. Directional signs are erected inside Class I points to avoid traffic congestion and accidents.

### Size

The site should be large enough to handle the estimated volume of Class I supplies and equipment. A parking area is needed for vehicles stopping at the checkpoint, loading and unloading supplies, bringing in and taking out refrigerated trailers, and MHE. Class I sites must be large enough to afford some dispersion of supplies to lessen the chance of enemy destruction. Dunnage is used to keep the supplies off the ground, and tents and tarpaulins are used to provide protection when buildings are not available. Lighting must be adequate for safety and security. The perimeter should be fenced and checkpoints established at each exit and entrance. Figure 4-1 on page 4-8 shows the suggested layout for a rear area Class I supply point. Figure 4-2 on page 4-9 shows the suggested layout for a forward area Class I supply point.

## Concealment and Cover

Because of the large amounts of supplies stored at a Class I point, it is extremely difficult to camouflage or conceal all of the subsistence. If trees are available, the palletized rations are placed under them. All trucks and MHE should be camouflaged with netting. When possible, terrain features should be used to protect the Class I point from enemy fire.

## Defense

Three-strand concertina wire is used to define the site's perimeter. The concertina wire is interlaced with sensors, trip flares, and antipersonnel mines to provide early warning of the enemy's approach. The condition of the perimeter is checked by security patrols daily. Fighting positions are included as part of the unit's overall defensive plan. Light and noise discipline are enforced as required by METT-T.

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## Camouflage

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The subsistence supply point and field mess area must be camouflaged to keep enemy aircraft, ground forces or infrared sensors from detection. Precautions follow.

- Do not let the troops gather in large groups to eat.
- Make sure the area and equipment cannot be seen from the air.
- Screen the dining area from ground observation if it is set up near combat or hostile areas.
- Bury or retrograde disposable dishes and utensils, tin cans, and litter from packaged rations.

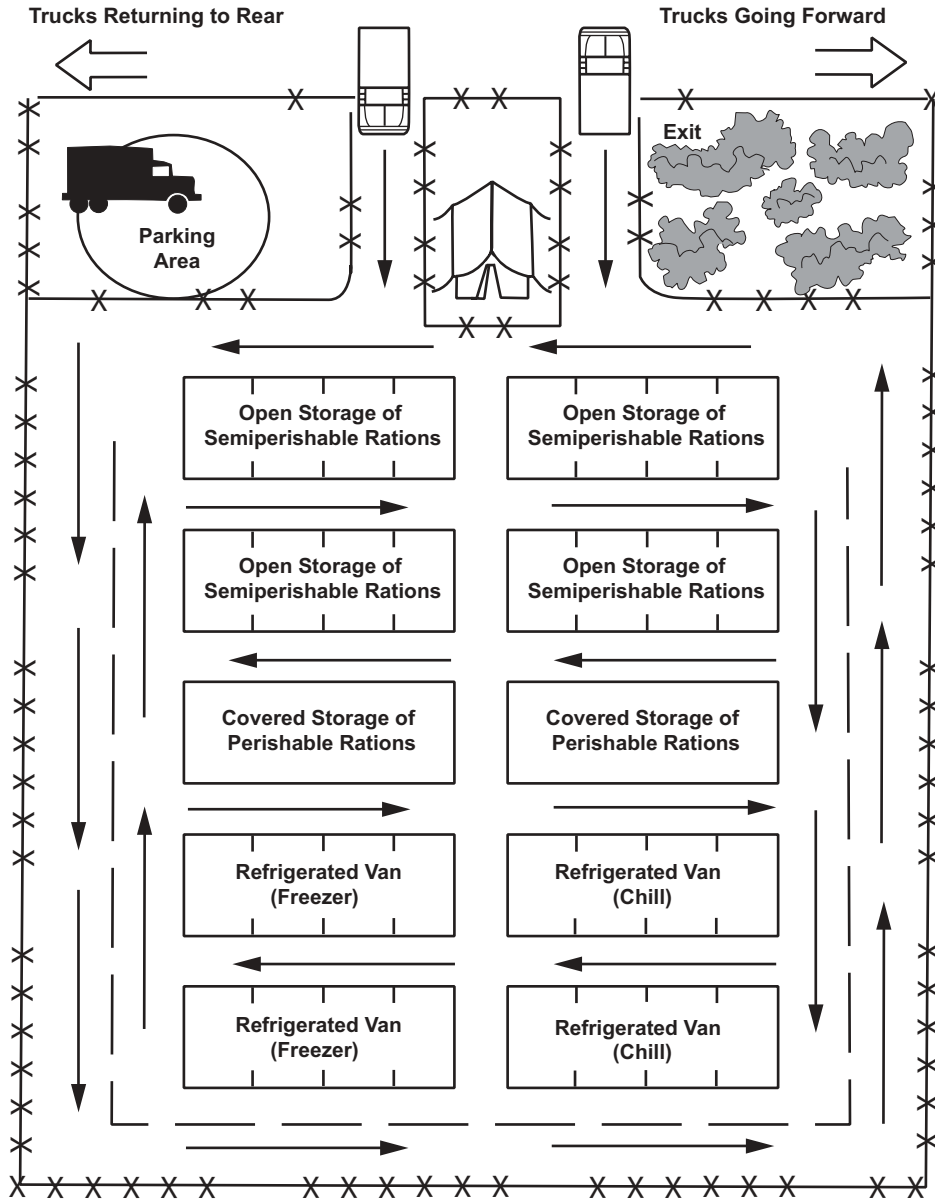


Figure 4-1. Rear Area Class I Supply Point.

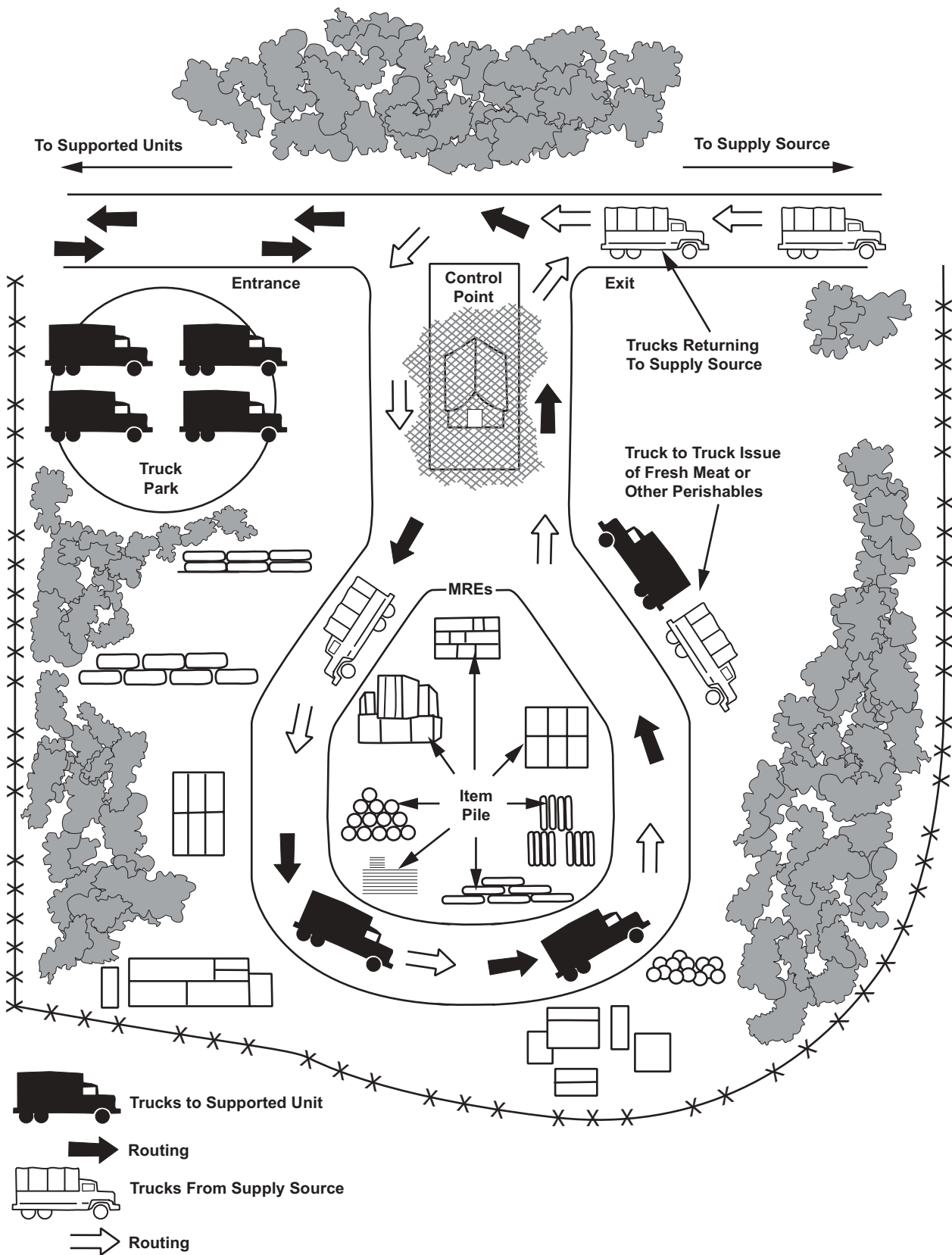


Figure 4-2. Forward Area Class I Supply Point.

- Camouflage the area where refuse is buried. Class I personnel must be aware of policy on retrograde or disposal of condemned rations. Make sure food service and Class I personnel are aware of the policy on garbage disposal in their AO.
- Camouflage equipment and other items that might reflect light and keep them out of sunlight.
- Use light discipline when required. In blackout conditions, cease all field kitchen operations and eat MREs during these periods. Ensure the ration breakdown points use appropriate lighting during night operations.

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### Field Mess Site Selection

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The unit commander or his representative specifies the general location of the field mess site. However, the mess chief must consider the characteristics of a good field site.

- Good natural cover shields troops from the enemy and protects them from sun, heat, and cold winds.
- Good access roads lets supply trucks move freely.
- High and dry ground near a protected slope ensures good drainage and protection from the wind.
- Enough space eliminates crowding of the troops and facilitates spreading out the equipment so that personnel can work efficiently.
- Near source of potable water used in preparation of foods and beverages.
- Sandy loam or graveled soil allows excess water to seep away and helps soakage pits and trenches work well.
- Level ground facilitates the set up of the FFSS.

The following should also be considered in selecting and setting up the field feeding site:

- Tactical or nontactical operation.
- Extent of time the area will be occupied.

- Method of solid waste disposal (burn, bury, back-haul).
- Resupply operations.
- Use of tents or buildings.
- Billeting area location.
- Convenient water source for purification when needed.
- Location away from heads or any source of contaminants.

Figure 4-3 suggests placement of a rear area field mess when using the FFSS. The field mess area should be camouflaged to hinder detection by enemy aircraft, ground forces or infrared sensors. Passive measures should include dispersion, camouflage, cover and concealment, light and noise discipline, survivability moves, covering vehicle tracks into the field kitchen site, and staggering ration distribution to eliminate congestion of the site.

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### Field Feeding Options

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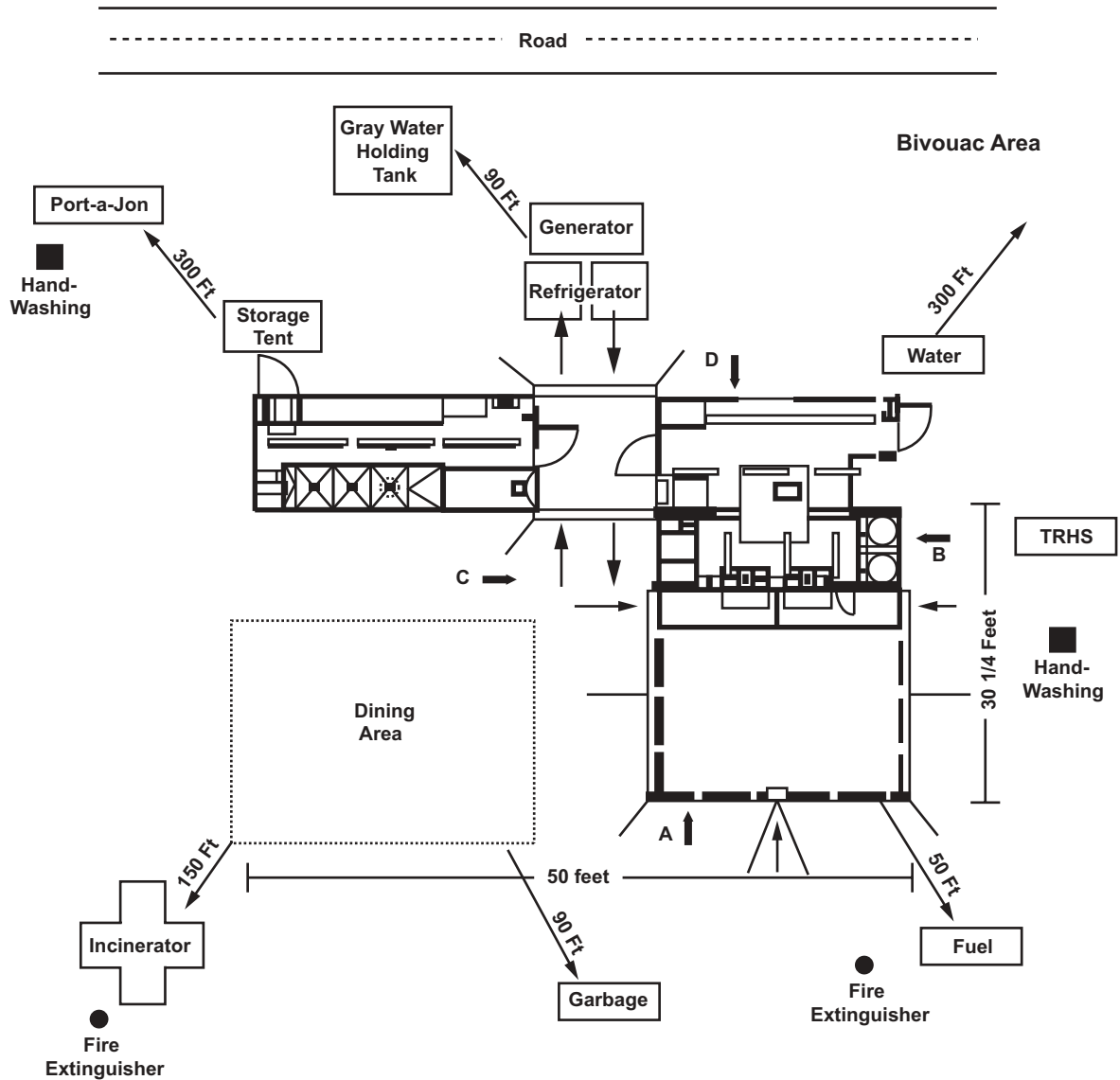
#### Semipermanent Site

The semipermanent site is located in the rear area for an indefinite time. Since some units may not require rapid mobility, a semipermanent site may be established near troop concentrations. Insulated food containers would be used to transport hot food to nearby units that require a larger degree of mobility.

#### TRHS

The TRHS can be located close to the forward units and is operated for short durations. Its use should be limited to short periods of time for smaller units with a highly mobile mission. Long-term sole subsistence on UGR-H&S will have the same effect on physiology and morale as MREs. Which option to use is determined by the following:

- Availability of equipment and personnel.
- Capability of the logistics system.



**Figure 4-3. Recommended FFSS Layout.**

- Level of commitment.
- Availability of rations.
- Total sanitation requirements.
- The number of personnel to be fed.
- Feeding times.
- Location.
- Mission.

Each field feeding method can be tailored to meet the requirements unique to each using unit.

Established field mess sites may be required to provide messing support to units operating in or passing their area who require support. Food service personnel should be responsible for the transportation, setup, and feeding of units away from the field mess. Food service personnel should accompany meals sent to remote sites to ensure proper sanitation and portion control. Remote feeding requires intensive management by commanders and food service personnel. Remote feeding may be accomplished by various methods.

When practical, the TRHS may be deployed to remote sites for hot meal preparation. Three food service Marines should accompany this equipment.

When staging prepared subsistence, dunnage should be used, and the area should be covered when possible. Staging can be by unit, meal or item. The staging area must be supervised by a food service Marine to ensure that units receive the proper amount of rations and instructions in sanitation and serving.

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### Preparing for Redeployment

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Planning Class I and food service requirements for redeployment is equally as important as planning for deployments. The mess chief must ensure that enough Class I supplies are available to sustain the unit enroute to its home station. If residuals are present at the end of the exercise or deployment, excess Class I supplies are turned in to the supporting supply activity. Attention to

detail and coordination with commander and staff will ensure smooth unit movement.

Following the correct procedures for closing the field mess and Class I AOs is extremely important. Consideration must be given to the environmental impacts caused by soakage pits, grease traps, trash pits, and incinerators. Several US Army FMs (5-20, *Camouflage*; 21-10, *Hygiene and Sanitation*; and 21-10.1, *Unit Field Sanitation Team*) provide information on closing the field site. Chapter 3 of this publication details how to clean and maintain equipment before movement back to home station.

The unit must be prepared to provide food service support during redeployment. The commander and unit embarkation officer should be the first stop in gathering information. They will provide the specifics of when, how, and where the unit will move. They will also provide specific food service needs such as convoy rest halts, railhead support, and overnight commitments.



# CHAPTER 5

## CLASS I STORAGE, ISSUE, AND TURN-IN PROCEDURES

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### Types of Storage

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A covered storage area is in a walled and roofed structure. An open storage area provides protection that can vary from no protection, to the protection by tarpaulins, tents, huts or sheds. Class I supplies, even semi-perishables, keep best in covered storage. However, the rapid turnover in the field eliminates many long-term storage problems.

Supplies are stored so that those with the oldest date of pack are easily issued first. To prevent total destruction in the event of enemy attack, perishable and semiperishable subsistence are stored and disposed in separate locations.

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### Perishable Storage

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It is important that proper temperatures, humidity, and air circulation are maintained and only compatible products are stored together.

#### Temperature

Perishables stored below prescribed temperatures can suffer chill damage. Per NAVMED P5010, chapter 9, temperature for storing frozen subsistence should not exceed 0°F. During transportation, the temperature should not exceed 10°F. For ice cream, the recommended temperature is -10°F and should not exceed 0°F at any time. Chilled items should be stored at 34°F to 41°F. Each storage container (mobile or fixed) is equipped with a thermometer that must be checked frequently, at a minimum, twice a day.

#### Humidity

Prescribed humidity levels prevent items from gaining or losing moisture. A high humidity level

allows moisture to condense on an item and be absorbed. A humidity level that is too low allows the item to dry out.

#### Air Circulation

Proper circulation of refrigerated air is the prime factor in keeping the temperature in all parts of storage spaces at recommended levels. Pallets are used to raise containers off of the floor and permit the free circulation of air. Containers are stacked to ensure a 4-foot wall clearance and a 2-foot ceiling clearance, with adequate working space between stacks. Fan or duct systems maintain proper circulation. Items should not be stacked in front of the refrigeration unit or the fan in prefabricated units.

#### Product Compatibility

Storing incompatible products together may result in color loss, taste changes, and odor absorption. Products should be grouped according to compatibility. Odor-absorbing items such as potatoes should not be stored with odor-producing items such as apples or citrus fruits.

#### Storage Precautions

As soon as frozen items are delivered, they should be transferred to freezer storage. If the product's temperature is higher than the temperature in the freezer, the shipping containers are placed on pallets or hand trucks to allow the air to circulate and reduce the product temperature as quickly as possible. The containers should be stacked more compactly once a uniform temperature is achieved. Items that have thawed are never refrozen. Items are not stacked so high that containers on the bottom are damaged, and the contents are crushed and bruised. Items are stored so that the oldest lots, by date of pack, are issued first (first in, first out). The only exception to this

first in, first out rule is when older lots are in better condition than newer ones. If perishables are stored properly, they should show no major loss of quality within 20 percent of their storage life.

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## Semiperishable Storage

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Semiperishables are not as susceptible to spoilage as perishables. They may spoil if they are handled or stored incorrectly or if they are kept for too long. Properly storing and protecting semiperishables ensures that products are tasty and safe for consumption during their shelf life and possibly beyond.

*Note: after veterinary personnel inspect a product, they may extend its shelf life.*

### Correct Storage

Items are not stacked so high that boxes and their contents are damaged. Items are not placed directly on the floor. Bagged items should not be stored in corners, and no subsistence should be stored directly against walls. MRE cases may be stacked up to four pallets high. In open storage, items should be placed on pallets and organized for ease of access.

### Freezing Temperatures

For dry or low moisture semiperishable items, freezing temperatures do little or no damage. Freezing may cause damage to the packaging of items that have water as content. Can seams (commercial and tray pack) may rupture, and MRE pouches may be cut or punctured. This damage can lead to serious health risk if items are not properly handled and inspected by veterinary personnel. Metal cans are not generally engineered for freezing. Frozen cans and MRE pouches should not be rough handled as this may compound the likelihood of damage to the packaging. Storage life of semiperishable rations is extended by lower temperature storage (from

50°F to as low as 32°F). Frozen storage is not recommended.

### High Temperatures

High storage temperatures encourage the growth of bacteria and molds, promote insect infestation, and shorten the approximate storage life of semiperishable items. The serviceable storage life of MREs decreases as storage temperatures increase. UGR-H&S have been designed to have a minimum shelf life of 18 months when stored at 80°F or 6 months at 100°F. In fixed warehouse facilities, semiperishable items should not be stacked so high that they are damaged by higher temperatures near ceilings (hot air rises). Items should not be stacked near hot water heaters, steam, heat pipes or in metal buildings and trailers without adequate ventilation to prevent heat build up. Fans should be used to provide ventilation and to prevent excessively high temperatures. Food items should not be stored in direct sunlight. In open storage, natural cover can help reduce damage from direct sunlight and high temperatures.

*Note: Refrain from covering UHT milk and/or other subsistence items with black plastic in a field environment. Black plastic intensifies temperatures and causes rapid deterioration of subsistence.*

### High Humidity

Avoid high humidity when possible because it encourages the growth of bacteria and molds and promotes insect infestation. High humidity also causes dry items to absorb moisture, making them cake and harden. Loss of flavor and discoloration may also occur in some items. Humidity also causes metal containers to rust and boxes to weaken.

### Exposure to Light

Items packed in clear containers may lose their flavor as a result of over-heating and may become discolored when exposed to light for prolonged periods. Clear containers should be boxed or in areas with reduced light exposure.

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## Handling MREs in Freezing Temperatures

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The flexible film pouch used for MRE items—such as the entrée or wet pack fruit—becomes less flexible or more brittle at temperatures below 0°F. The contents of the pouch freeze in random shapes, creating sharp edges or points. These edges and points may cut, puncture or otherwise damage the pouch if roughly handled. When the contents are thawed, bacteria can begin to grow and the food becomes unfit for consumption.

The following procedures will reduce the possibility of damaged pouches and foodborne illnesses. MREs that become frozen during exercises should be kept frozen until issued for immediate consumption. If frozen MREs are returned to storage and thawed, they must be segregated and marked with a placard stating, “Hold, previously frozen, returned to heated storage on (date), cleared for issue (date [minimum of 30 days after returned to heated storage]).”

Frozen MREs are tempered to ensure that the center of pallets or boxes reaches room temperature (77°F). MREs are held at this temperature for 30 days and then inspected by the Army Veterinary Service prior to issue.

The time and temperature period stated will allow the contents of the pouches to react, if spoilage bacteria are present. Rations not intended for freezing should not be frozen. The product quality will deteriorate with each freeze/thaw cycle, but the food will remain wholesome as long as the pouch is not damaged. The MRE should not be cycled through more than five freeze/thaw cycles.

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## Storing and Handling RSFHs

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### Packaging

RSFHs are packed in both case lots (boxes), and as individual units within the MRE pouch. In bulk pack, each RSFH heater pad is packaged in

a sealed polyethylene bag. Twelve RSFHs are packed into a plastic shrink-wrap sleeve. Each box contains 24 unit packs (288 RSFHs). Each pallet of RSFHs contains 30 boxes and 8,640 heater pads. Pallets are wrapped in polyethylene, covered with a top cap, and strapped to protect the shipping boxes.

### Storage

Because RSFHs packaged within the MRE box are not regulated by the Department of Transportation, no special handling or storage is required. The following guidelines are applicable to bulk storage of the RSFH. Specific storage guidelines are in DOD Regulation 4145.19-R-1, *Storage and Materials Handling*.

The installation fire protection officials are notified of location of stored RSFHs. They may impose local storage decisions. Handling and storing RSFHs present no health hazard beyond that of combustible materials.

Boxes are stored in dry storage areas where protection against the elements is provided. Wrapping or use of tarpaulins on pallets will aid in the prevention of water damage.

Boxes are stored under sprinkler systems that meet DOD standards. When possible, end bays should be used for the storage of RSFHs. Stacks of RSFHs are to be arranged for access to the stack's interior and removal to outdoors for fire fighting.

Quick response to fire detection and use of appropriate fire fighting agents are important. Fire fighting agents are to be present for both Class A and Class D protection. Any damaged boxes must be removed from storage and inspected, and the contents repackaged in the required container or disposed of properly. Damaged boxes should be considered for first issue as a distressed item.

The RSFH is activated according to the instructions, and then disposed of as ordinary waste. It may also be incinerated in a waste facility ensuring that all material is burned thoroughly. Unused

RSFHs will be collected and returned to the rations issue point.

### Transportation (Bulk Pack Only)

All transport vehicles (including air and sea cargo containers), other than military, are to have placards on the cargo that read “Dangerous When Wet.”

### Transportation

Vehicles used to transport subsistence should be clean, free of moisture, and have pallets to keep subsistence off the bed of the truck. The front and rear flap should be lowered and secured during transport. Vehicles used to transport food are not to be used to transport garbage or petroleum products while transporting subsistence. The bed of the truck should be free of harmful protrusions such as nails that could puncture food containers. Refrigerated or insulated vehicles should be used to transport perishables when time, distance, and outside temperature could cause the temperature to rise above required safe levels for refrigerated and frozen items.

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### Sanitation at Storage Points

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Sanitation in a subsistence supply activity must be maintained per NAVMED P5010. Contaminated food can cause illness and death. Food that must be disposed of is a loss to the government and can have an adverse impact on mission accomplishment. Environmental protection laws and regulations must be followed when disposing of subsistence.

### Personnel

Personnel handling Class I subsistence should be neat, clean, and free of disease and infection before they are allowed to handle subsistence. They should not smoke or chew tobacco when handling subsistence. Disposable gloves used in handling fresh foods should be impermeable to

contamination. Personnel must wash their hands thoroughly before starting work, before eating, after breaks, and after using the head.

### Area and Equipment

Storage areas should be kept clean, orderly, and free of garbage at all times. Garbage should be disposed of in approved containers with tight-fitting lids. Spilled food should be cleaned up as soon as possible to prevent insect and rodent infestation. Scales and MHE should be kept clean. Hand-washing facilities should be readily available for food service personnel.

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### Pest Control

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Food service personnel must assist in preventing pest infestation by maintaining properly established and sanitary operations. Pest-proofing the storage area, food deprivation, and use of appropriate extermination measures can control pests. When pests are discovered in the storage area, the preventive medicine activity must be notified immediately.

### Insects

Incoming supplies should be inspected carefully for infestation and empty cartons should be removed from the premises promptly. In fixed facilities, screens should be used on outside doors. When supplies are received, doors and screens should be open for the shortest time possible. Cracks in the walls and floors should be filled. Heads should be kept clean. Garbage cans should be kept covered with tight-fitting lids, and the contents disposed of promptly. Subsistence should be stored on pallets away from walls to eliminate hiding places, facilitate inspection and cleaning, and allow proper air circulation. If at all possible, subsistence should be on shelves or dunnage a minimum of 6 inches off the floor or ground, and a minimum of 4 inches away from the walls to permit cleanup of spills. In open storage, supplies should be covered with tarpaulins or

clear plastic when practical. Broken containers of food should be cleaned up quickly and completely. If areas do become infested, insecticides are used for control.

## Rodents

The first step in rat and mouse control is to prevent their entry into the storage facility. Holes should be covered or filled in, and doors should close tightly. The next step is to eliminate rodent hiding places by keeping subsistence on pallets away from walls. Finally, their food sources should be eliminated by proper garbage disposal and good housekeeping. If areas become infested, traps and poison baits can be used for elimination. A medical authority from the preventive medicine activity must approve the use of poison baits; approval is based on compliance with environmental stewardship principles. All environmental laws and regulations must be adhered to in the use of poison baits.

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## Inspections

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Subsistence supplies are inspected upon receipt and then periodically until they are consumed. Inspections ensure that only food fit for consumption is received and issued.

Inspections should be performed on all subsistence items before they are accepted. This inspection ensures that items are received in good condition and in the authorized quantities. A representative of the Army Veterinary Service is responsible for inspecting all animal-origin and perishable subsistence as it is received at a supply point. The veterinary food inspector on receipt does not inspect semiperishables unless requested by the accountable officer for local procurement. If the subsistence is wholesome, complies with contract requirements, and the contractor can be identified from container markings or shipping documents, the veterinary

food inspector stamps the delivery documents. Veterinary food inspectors are also responsible for conducting inspections on subsistence in storage to detect early signs of deteriorating food. Cases of semiperishables that pass inspection are stamped with an inspection test date (ITD). The ITD indicates the approximate remaining shelf life. Rejected items are reported to the accountable officer who then initiates appropriate disposal action. There are three types of inspections: visual, sampling, and full.

Usually, food service and supply Marines perform the visual inspection. The inspector checks the outside of the Class I item or its container for damage or deterioration. The Army Veterinary Service should inspect damaged containers, such as broken boxes and dented cans.

In sampling, the veterinary food inspector chooses a number of units at random and inspects them thoroughly. If any of the samples are damaged or deteriorated, the veterinary food inspector performs a full inspection. Items used during sampling inspections are accounted for on Department of Army Form 3161, *Request for Issue or Turn-In*, as an identifiable loss.

Full inspections should be conducted when procuring items from sources not previously approved. The veterinary food inspector thoroughly examines all units of a particular item or shipment. Damaged or deteriorated items are set aside, and the veterinary food inspector advises the accountable officer on disposition.

## Canned Goods

Individual cans should be inspected when there is reason to believe they may be damaged. If boxes are broken or bent, they should be opened, and each can inspected. The veterinary food inspector should inspect cans that are rusted, swollen, leaking or dented, and those that have been stored for a long period of time or exposed to high temperatures.

## UGR-H&S

Tray packs are inspected for damage such as swelling, rust, and gray spotting. Tray packs with any of the following defects should be set aside for further inspection and destruction:

- Leaks from a pinhole, fracture or incomplete seal where the contents of tray packs are on the outside of the container.
- Rust that actually penetrates the tray pack causing leakage or excessive end seam rust that cannot be removed with a soft cloth and would enter the product when the tray pack is opened.
- Dents that are so severe that they cause leakage or affect usability.
- Swollen or outwardly distended tray lids bulging from internal pressure or swells caused by physical damage such as dents or overheating.
- Buckles or bends in the top that extend into the end seam of the tray pack.
- Gray spots.

## Other Semiperishables

Semiperishables in jars, cardboard containers, and paper bags will spoil if they are mishandled or improperly stored. Containers should be inspected for signs of insects or rodents and damage from moisture or mishandling. Products in clear containers should be inspected for color changes. If any of these signs are evident, a veterinary food inspector should be called.

## Fresh Fruits and Vegetables

Fresh fruits and vegetables should be inspected on receipt and every day while in storage. Fruits and vegetables must also be inspected for insect infestations including fruit flies, roaches, and worms. Preventive medicine and veterinary personnel must be notified if insects are seen. An effective test to determine if fruit and produce are fit for consumption is to cut them open and taste them. Freezer-damaged items will appear glassy, and chill-damaged items may be discolored and have an off-flavor.

## Frozen Items

Frozen items, including meat, should be frozen solid when received. If thawed, they must be used immediately if approved by the veterinary food inspector. Thawed items should never be refrozen. Packages are checked on all sides for ice, which is a sign that they have thawed and been refrozen. Icy packages should be checked by the veterinary food inspector.

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## MCFFP Accountability

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### Ration Issue

Class I supplies used during field operations will normally be picked up by the using unit at the material readiness branch issue point. Upon receipt of the rations, appropriate accounting measures are the responsibility of the receiving unit. Manual or automated means will be used to reflect the receipt and issue of each item. Unitized rations are recorded under a single NSN for each module type. A-ration enhancements will be accounted for by the unit they are issued (can, pound, etc.).

### Receipt

Receipts must be obtained from approved local vendors or the ration issue point when rations are received. When receiving rations, food service personnel should conduct a quality and quantity inspection at the time of receipt to determine the condition of cans and packing materials and to verify the quantities received by signing and dating the forms provided. Food service personnel should keep a copy of all receipts for proper accounting and reconciliation.

### Inventory

A daily running inventory of subsistence items on hand in the field mess must be maintained. This inventory is kept using manual or approved automated accounting methods.

## Reconciliation

When supported by the US Army, a financial record is maintained by the Troop Issue Subsistence Activity (TISA). Unit commanders will ensure field mess financial records are reconciled regularly before departing. If the TISA is automated, an account update is provided to the field mess on a scheduled cycle. A copy of the final document will be included in the unit's QSFR. The food service Marines maintain all invoices and reconcile all transactions for price changes and quantity received before closing the operation.

## Accounting

Subsistence accounting must be performed in a manner that subsistence supplies are efficiently received, stored, and issued to the using units. To give management personnel sufficient data to properly manage subsistence supplies, the following management control forms are used. These forms can be manual or automated forms.

- Subsistence issue receipts.
- Stock record and inventory control cards.
- Inventory, requisition, and issue forms.
- Daily cost analysis.
- Financial status.

Subsistence accounting is closely monitored and frequently audited by DOD agencies due to the large monetary value associated with subsistence supplies. Therefore, all subsistence accounting must be kept as accurate and up-to-date as possible. During wartime, the method for accounting is combat accountability. During peacetime, the prescribed method of accounting is completion of the QSFR. A QSFR will be prepared for each operation by the using unit. The QSFR will then be submitted by the using unit, via the appropriate chain of command, to the MEF not later than 15 calendar days following the end of the operation/quarter. Operations that cross over quarters must close out accounting documents at the end of the quarter and begin a new quarter of account-

ing. This will allow submission of the quarterly QSFR required by the MEF. The QSFR, with all supporting documents, will be retained by the using unit for 2 years for audit purposes. Supporting documents will include the following:

- QSFR.
- Daily Man-Day Fed Reports (Navy Marine Corps [NAVMC] 565-1) for each day of feeding.
- Consolidated Man-Day Fed Report (NAVMC 565-1) for each operation.
- Voucher for Disbursement and/or Collections (SF 1080, *Voucher for Transfer between Appropriations and/or Funds* or DD Form 1131, *Cash Collection Voucher*).
- Applicable HNS and/or HNM billing documents.
- Copies of invitational travel orders (ITOs) for foreign military personnel (if applicable).
- Applicable inter/intraservice support agreements or memorandums of understanding (MOUs).
- POR and unitized ration receipt/turn-in documents.
- Subsistence Total Order and Receipt Electronic System Web or other vendor receipt/turn-in documents.
- Veterinary Service Food Sample Record (Medical Command [MEDCOM] Form 57-R).
- Subsistence issue receipts.
- Stock record and inventory control cards.
- Inventory, requisition, and issue forms.
- Daily cost analysis.
- Financial status.

The submission to the MEF will include the following.

- QSFR.
- Consolidated Man-Day Fed Report (NAVMC 565-1) for each operation.
- Voucher for Disbursement and/or Collections (SF 1080 or DD Form 1131).
- Applicable HNS and/or HNM billing documents.
- Copies of ITOs for foreign military personnel (if applicable).
- Applicable inter/intraservice support agreements or MOUs.

- A consolidated quarterly QSFR of all field feeding, listing each operation separately will be submitted from each MEF to Headquarters, Marine Corps (HQMC) (LFS-4) not later than 15 days after the last day of each quarter.

The QSFR provides accurate accounting of military personnel, Marine Corps subsistence funds to HQMC (LFS-4) for the purchase and consumption of unitized rations, PORs, A-ration enhancements, contract feeding and HNS. Additionally it provides the numbers of personnel fed by category. This report also documents historical data and justification for budget submissions, as required by higher headquarters, as well as detailed documentation of budget execution to the Fiscal Division, HQMC.

Combat accountability is a modification to normal operating accounting and reporting procedures and is used primarily during war. When the CMC authorizes combat accountability, the force commander may suspend formal accounting for Class I supplies. Additional guidance will be published accordingly; however, a monthly combat accountability subsistence report, with the type and value of the food items received and the number of personnel fed by category, will be compiled by the using unit and forwarded to higher headquarters and HQMC (LFS-4) monthly.

### Ration Turn-in

Before leaving the field exercise or operation, the manager in possession of rations should contact the veterinarian to schedule a "ration inspection" appointment, before contacting the rations platoon for turn-in. Rations platoon will not accept rations not previously inspected by local veterinary personnel. All unopened modules of unitized rations, boxes of MREs and BSS, and containers of UHT milk are turned in at the end of the field operation or deployment.

Prior to being veterinarian inspected, rations must be segregated and documented according to ration type, lot number, date of pack, and quan-

tity. Supporting documentation must accompany the rations to be inspected. Once rations are segregated, they should be loaded into the ISO containers accordingly, not randomly stacked. Any problems that were experienced with the rations during the exercise or operation, e.g., swollen cans, rusty cans, insects, etc., should be documented and provided to veterinarians at the time of their inspection to determine the proper sample size selection and disposal method.

To assist veterinary personnel, the unit possessing the rations will provide the personnel to unload and sort the rations for the inspection. Once the veterinary personnel have completed their inspection and documented findings, units will then make an appointment with the ration platoon for final turn-in.

Veterinary personnel are not responsible for inventory control and documentation at the time of inspection. Rations not properly annotated with the required information will not be accepted for inspection and will require a rescheduled inspection. Veterinary personnel will document nonconforming actions by the unit and issue memorandums to appropriate commands for action as deemed necessary.

The exercise manager maintains complete responsibility for all rations until turned in to the rations issue point.

### Accounting for Residuals

Residuals are open cases of PORs and unitized rations that have remaining component items for future use. POR boxes (not individual meals) that have been opened can be transferred for use during a future exercise or maintained by the unit for 30 days. UBR, UGR-B, and UGR-H&S components (tray packs are not authorized for use in garrison mess halls) can be transferred to another field mess or supporting garrison mess hall on a non-reimbursable basis. All rations, either unopened or opened, must be inspected by the veterinary services before transfer or turn-in.



# CHAPTER 6

## SAFETY AND SANITATION

Field conditions in modern warfare can be altered rapidly and require foresight to deal with environmental stresses. Urban warfare may require troops to deploy into an area that previously had modern public utilities such as potable water lines, sanitary sewers, and waste disposal. Areas such as this can change overnight into an urban disaster area where all water, food, and services are suspect of contamination or have been destroyed.

Field food service Marines will have to set up a field mess site, set up and operate sanitation units, construct and maintain field expedient hand-washing devices, dig soakage pits, and distribute food to areas away from the field mess area. These inherent tasks result in long working hours. Augmentation with mess attendants is essential. The number of personnel required depends on unit feeding strength, mission, type of ration, and remote site feeding versus consolidated feeding.

Field food service equipment is inherently different from that used in garrison. Therefore, all authorized T/E equipment must be operational, and an adequate preventive maintenance program in place. Marines should be properly trained in the use and safety of field mess equipment before they attempt to use it. This is particularly important when using food service equipment that is operated with combustible fuels. Equipment TMs provide specific guidelines on the safe operation of equipment.

NAVMED P5010, chapter 9, provides guidance on field food service sanitation. Keeping the field mess area safe and sanitary takes more time in the field than in garrison. Food and water supplies may not be as carefully controlled as they are in garrison. Regular and careful inspection of food is of paramount importance and can help

prevent food borne illnesses. Entire armies have been defeated by such disease outbreaks resulting from the mishandling of food and food-related waste. To prevent these diseases, the food service personnel must—

- Obtain food and water from approved sources.
- Prevent food contamination by ensuring the use of proper food handling, storage, and utensil/equipment cleaning procedures.
- Retard the growth of microorganisms through the use of proper time and temperature controls.
- Train and motivate personnel in food sanitation standards and in personal health and hygiene matters.
- Dispose of all types of food-related waste (garbage, rubbish, and liquid kitchen waste) as outlined in NAVMED P5010, chapter 9.
- Clean vehicles used for transporting rations.

Perishable rations (A-ration enhancements) require refrigeration. Therefore, extreme care should be used in their handling. Improper handling increases the potential for foodborne illness.

FSOs should prepare local standing operating procedures (SOPs) clearly outlining the unit's system for meal distribution.

The situation will dictate whether there will be a central distribution site or whether food service Marines will transport the meals.

Because of limited facilities in the field, the use of proper sanitary measures is even more important than it is in garrison mess halls. The following measures are emphasized:

- Food handlers should keep serving containers covered, unless actually in use, to protect against flies.

- Field dish washing is accomplished by either a three-compartment sink or the use of the FSU. The first can/compartment in the wash line contains hot (but not boiling) soapy water. The second and third compartments hold boiling water. The proper temperature for each sink or compartment is listed in NAVMED P5010, chapters 1 and 9.

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## Combat Field Feeding

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Logistical support areas in the theater are high priority targets for enemy NBC employment. Sophisticated delivery systems for NBC munitions allow the enemy to employ such munitions from the forward edge of the battle area to the rearmost boundaries of the theater. The main countermeasure to this threat is the ability to continue operations while subjected to an NBC attack. Marines must still receive rations, without delay, that are safe to consume. Although the subsistence may be safe, contaminated cooking utensils and equipment may require the use of PORs. The tactical situation and the priorities of decontamination will determine how long PORs will have to be consumed.

Mess chiefs should provide safety guidelines through daily meetings and SOPs. Guidelines should be developed to stop unsafe practices and working conditions, and careless use of equipment. Marines must be taught to recognize and rectify unsafe conditions.

Mounted UGR-H&S can openers are used when possible. If mounted can openers are not available, the hand-held can openers are used. Marines must exercise caution when opening UGR-H&S with hand-held can openers. Knives and other sharp instruments should not be used to open corners that the can opener missed. Heated, swollen cans should be tilted in a safe direction to avoid burns from hot juices.

Food service personnel must always be alert when they prepare or serve food. Burns, colli-

sions, and falls are common accidents in field messes. Training can curtail unsafe working conditions and careless use of equipment. Accidents cost money through the loss of man-hours and damage or destruction of food and equipment. The resulting loss of personnel, subsistence, and equipment could impact negatively on mission accomplishment. For detailed information on safety refer to DOD Regulation 4145.19-R-1.

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## Food Management

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All food service and mess attendant personnel shall be certified as food handlers by medical authorities in accordance with the current edition of NAVMED P5010.

When A-ration enhancements are added to the unitized ration meals, adequate refrigeration support must be provided. Where adequate refrigeration capability is not available, unitized rations or PORs will be used exclusively.

Insulated food containers will be cleaned and sanitized before use. Per NAVMED P5010, chapter 9, containers will be pre-chilled or pre-heated as appropriate prior to filling. Food will be brought to safe temperatures prior to placement in containers. Potentially hazardous food held in insulated food containers for more than 4 hours will be discarded as food waste.

Individually packaged condiments are preferred in the field; however, condiments may be dispensed from sanitary dispensers.

Field-expedient hand washing facilities will be provided at food preparation areas.

Waste will be disposed of to minimize insect and rodent attraction. Garbage and rubbish will be buried, incinerated or disposed of according to local requirements.

Fresh fruits and vegetables grown in areas where human excreta is used as fertilizer, or where gastrointestinal or parasitic diseases are expected to be

prevalent will not be consumed raw except with the approval of appropriate medical authorities.

*Note: When authorized for consumption, fruits and vegetables, including leafy vegetables, may be eaten raw if thoroughly washed in clean potable water, then disinfected. Where food service disinfectant is not available, emergency disinfection of fruits and vegetables may be accomplished by thoroughly washing, then soaking for 30 minutes in a 200-parts per million chlorine solution or by immersion in potable water at 160 °F for 1 minute. The chlorine solution is prepared by mixing 1 tablespoon of household liquid bleach (NSN 6910-00-598-7316) with 1 gallon of cool potable water.*

### Trash Management

Based on the scenario and federal, state, local or host-nation laws, commanders will determine whether to burn, bury, back-haul or use dumpsters to dispose of waste from field mess sites. The policy on garbage disposal in an AO must be

disseminated. Waste must be removed from the kitchen area at least daily. Proper disposal of kitchen waste is also essential in limiting the battlefield signature.

### Liquid Waste

Liquid waste disposal requires a soakage pit or trench equipped with a grease trap that strains out solid matter and grease. The soil absorbs the liquid waste. Two pits are needed so that each pit can rest every other day. In porous soil, a soakage pit 4 feet (1.2 meters) square and 4 feet (1.2 meters) deep will handle 200 gallons (760 liters) of liquid per day. If the ground water level is close to the surface or if there is rock or clay near the surface, a soakage trench is dug. Figure 6-1 shows how to build a soakage trench with a grease trap. Due to environmental concerns, liquid/solid grease may require separate disposal.

### Solid Waste

Solid waste disposal is either buried, burned or back-hauled according to procedures described in the following paragraphs.

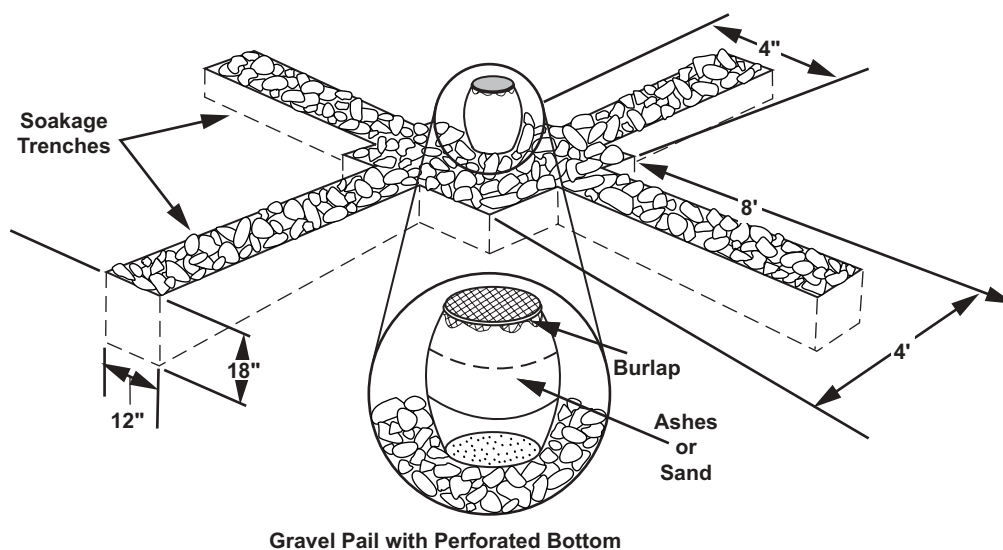


Figure 6-1. Soakage Trench with Grease Trap.

### Burying

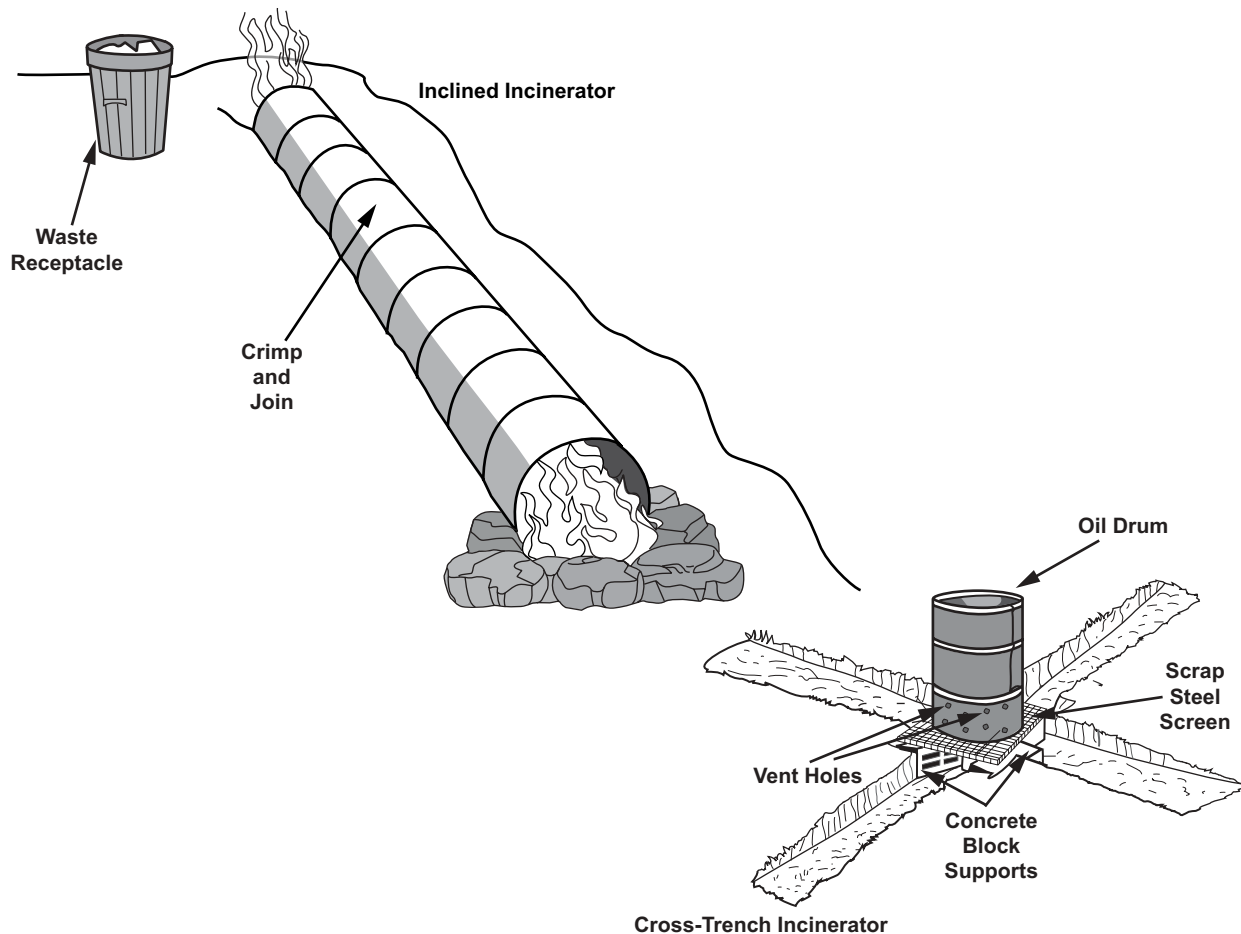
During peacetime, most state and foreign country laws prohibit burying trash. However, during wartime, if the unit will be at a site for less than 1 week, solid waste may be buried in pits or trenches. These pits or trenches must be at least 90 feet (27 meters) from the dining area and at least 90 feet (27 meters) away from any water source used for cooking or drinking. If the unit will be at the site for only 1 day, the garbage pit is used. If the unit will be at the site for 2 days to 1 week, a garbage trench is used. Prior to disposal, cans are flattened, boxes are broken up, and UGR-H&S cans are nested.

### Burning

During peacetime, most state and foreign country laws prohibit burning trash. During wartime,

if the unit is going to be at the site for more than 1 week, solid waste may be burned in an open incinerator, either inclined or cross-trench. Incinerators will not burn wet garbage; liquid waste must be separated from the solid waste. This can be done by straining the garbage through a coarse strainer, such as an oil bucket, can or a 55-gallon drum with holes in the bottom. The liquid is poured through a grease trap into a soakage pit or trench, and then remaining solids are burned. Garbage that will not burn must be buried or hauled to a disposal site. Field incinerators must be at least 150 feet (45 meters) from the mess tent and dining areas so that the odor will not affect the Marines. Figure 6-2 shows how to build inclined and cross-trench incinerators.

*Note: Incinerators make smoke and should not be used if it is detrimental to force protection.*



**Figure 6-2. Inclined and Cross-Trench Incinerators.**

### ***Backhauling Waste***

When the OPLAN calls for returning waste to a designated disposal point, the mess chief must arrange for transportation support. Waste should be bagged or boxed when possible.

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## **Protection from Contamination**

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### **Personnel Protection**

Generally, food is not prepared or served in an environment contaminated by NBC agents. While food service Marines have the basic understanding to detect contamination, the responsibility of decontamination of subsistence items falls to the veterinarians, naval medical personnel, and NBC specialists. It is important that operations continue only after ensuring adequate individual protection. Field messes must be decontaminated and moved to uncontaminated areas and decontaminated before food service operations can resume.

### **Food Protection**

Food must be protected from NBC contamination. Procedures for subsistence protection must be a part of OPLANs and SOPs at all levels of food service operations. Consuming contaminated food may cause illness, injury or death. Food stored outdoors should be under overhead cover as mustard agents will damage or degrade most protective wraps. Some food items may be decontaminated and consumed, however, decontamination is often a difficult and time-consuming process. Subsistence must be stored in ways to provide maximum protection in the presence of NBC contaminants. Planning for storage may mean the difference between having edible or nonedible subsistence. Foods that are packed in cans, bottles, airtight foil or film wraps, as well as food packaged in sealed boxes or multilayered

wrappings, may be stored outdoors or in partially protected areas. Foods not packaged in this manner must have interior covered storage to protect from NBC contamination.

### ***Food Inspection***

Food or water that may be contaminated by nuclear fallout or biological or chemical agents must be inspected. The Army Veterinary Service has the sole responsibility for monitoring and recommending food decontamination or disposition procedures. The Navy PMU handles water. If food or water becomes contaminated, it must not be consumed unless it is first decontaminated or approved for consumption. Equipment or personnel may contaminate food or water that is otherwise free from contamination, therefore, equipment and personnel must also be inspected.

### **Disposal**

Generally, food and water in airtight containers can be consumed after the containers have been decontaminated. Except in extreme emergencies, unprotected food and water are discarded. Unprotected food and water are decontaminated only when there is no practical alternative. All disposed contaminated items must be marked and treated as NBC hazard.

### **Decontamination**

Foods that cannot be decontaminated are disposed of according to local laws or military regulations. If food preparation equipment or food service personnel have been exposed to NBC agents, they must be decontaminated. Personnel are decontaminated with the M291-series decontamination kit. Food service equipment should be decontaminated by power-driven decontamination equipment or by steam cleaners. A hot water and soapy wash must follow to ensure all decontaminates are removed before food products can be prepared.

# APPENDIX A

## DEPLOYMENT PLANNING CHECKLIST

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### Mission

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- What is the unit's mission?
- What are the geographical, climatic, and environmental factors impacting on mission accomplishment?
- What is projected length of mission?
- Evaluate logistic support plan and annex D, Logistics Support to the OPORD.
- What headquarters is directing the deployment?
  - ◆ Are supporting units specified?
  - ◆ When does the external support begin?
  - ◆ What support will the unit receive?
  - ◆ Is there a deployment contingency plan?
  - ◆ What food service personnel and equipment are included in the deployment plan? Do they travel with the unit? Who supports if food service personnel and equipment are not included in the initial deployment?
  - ◆ Is there an internal logistical support plan or Class I portion of annex D of the OPORD?
  - ◆ Should the basic load of days of supply of Class I be issued to the individual Marine before deployment?
  - ◆ Will the basic load be consumed during the operation?
  - ◆ Have the supply source and operational dates for Class I been identified?
  - ◆ What are lead times for ration/supply requests?
  - ◆ What is the method of Class I distribution?
  - ◆ What is the flow of requisitions and Class I to using units?
  - ◆ What are Class I requirements to the supporting organization?
  - ◆ Where are supply and service locations (Class I, water, fuel, and landfill)?
  - ◆ What is the trash removal plan?
  - ◆ Are units trained in trash removal/disposition procedures?
- ◆ What is the subsistence retrograde plan?
- ◆ Are veterinary personnel available for subsistence support requirements?
- ◆ If there are HNS facilities, do they meet US sanitation guidelines? (Refer to NAVMED P5010)
- ◆ Has funding for the HNS been established?

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### Personnel

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- Evaluate mission requirements to determine personnel needs.
- Determine status of personnel, experience, training, and capabilities.
- Evaluate projected workload to determine mess attendant support requirements.
- Determine tours of duty for food service personnel.
- Determine training requirements, to include familiarization with unit/local SOPs and environmental standards in the AO.
- Are personnel trained in accountability procedures?
- What are cash meal payment and/or field meal reimbursement procedures?
- Review medical threat briefing with particular attention to potable water supply, chlorine residual, food borne illnesses of local populations, and sanitary quality of local food supply.

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### Equipment

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- Review T/E, consolidated memorandum receipts, and temporary loan receipts for equipment to determine shortages, if any.
- Evaluate status of equipment on hand to determine maintenance requirements.

- Evaluate workload and mission to determine supplemental equipment and storage needs.
- Evaluate spare parts on-hand and order shortages.
- Evaluate projected ration mix to determine refrigeration and ice requirements.
- Evaluate type and number of vehicles to determine packing and loading plans.
- Evaluate maintenance support to determine resupply of equipment and spare parts in the field.
- Ensure equipment is prepared and inspected before embarkation and all items are included in the UDL/load plan.
- Have enhancements been requested and programmed?
- Have warming and cooling beverages been considered, ordered, and funded?
- Determine number of personnel to subsist. Establish amounts of rations to request.
- Evaluate issue and request cycle from supply activity to determine timely submission of ration requests, reports, and forms.
- Determine daily need for ice to be requested. Is there a need for potable ice?
- Evaluate food storage procedures to determine security needs.
- Review inventory management procedures to reduce/control waste, loss, and excessive residuals.

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## Supplies

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- Evaluate projected workload and mission to determine requirements for all disposable and expendable supplies.
- Determine required stock levels. Prepare load list for required items.
- Project fuel consumption to determine needs.
- Forecast daily potable water consumption to determine water needs.
- Evaluate mission support to determine re-supply procedures for fuel, water, and disposables.

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## Subsistence

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- Determine ration accounting methods. Procure appropriate forms and establish procedures.
- What is the menu and ration cycle?
- Determine the feed plan, ration mix/theater, and menu/type of rations needed.
- Has the menu been published and distributed?

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## Miscellaneous

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- Check publications and forms needed for the deployment.
- Determine local waste disposal procedures and locations.
- Coordinate plans for site selection and layout of the field mess.
- Determine meal-serving periods.
- Coordinate with supported units. Determine feeding level requirements and the need for remote site feeding.
- Establish deployment teams for sending the TRHS forward to deployed units.
- Review equipment operations, safety, and sanitation requirements with team.
- Identify any site-specific environmental issues.
- Coordinate with NBC personnel for potential decontamination support.

# APPENDIX B

## WATER REQUIREMENTS FOR TEMPERATE, TROPICAL, ARID, AND ARCTIC ZONES

Temperate Zones	Daily Gallons-Per-Man Requirements	
	Sustaining	Minimum
<b>Company</b>		
Drinking	1.5	1.5
Personal Hygiene	1.7	0.3
Field Feeding	0.3	0.8
Subtotal	3.5	2.6
+10% Waste	0.6	0.3
Total	3.9	2.9
<b>Battalion</b>		
Drinking	1.5	1.5
Personal Hygiene	1.7	1.0
Field Feeding	2.8	0.8
Subtotal	6.0	3.3
+10% Waste	0.6	0.3
Total	6.6	3.6
<b>Regimental Landing Team</b>		
Drinking	1.5	1.5
Personal Hygiene	1.7	1.0
Field Feeding	2.8	0.8
Division-Level Medical Treatment	0.4	0.4
Subtotal	6.4	3.7
+10% Waste	0.6	0.4
Total	7.0	4.1
<b>MEF</b>		
Drinking	1.5	1.5
Personal Hygiene	1.7	1.0
Field Feeding	2.8	0.8
Division-Level Medical Treatment	0.4	0.4
Hospital-Level Medical Treatment	0.7	0.7
Subtotal	7.1	4.4
+10% Waste	0.7	0.4
Total	7.8	4.8



Tropical Zones	Daily Gallons-Per-Man Requirements	
	Sustaining	Minimum
<b>Company</b>		
Drinking	3.0	3.0
Personal Hygiene	1.7	0.3
Field Feeding	0.3	0.8
Heat Casualty Treatment	0.2	0.2
Subtotal	5.2	4.3
+10% Waste	0.5	0.4
Total	5.7	4.7
<b>Battalion</b>		
Drinking	3.0	3.0
Personal Hygiene	1.7	1.0
Field Feeding	2.8	0.8
Heat Casualty Treatment	0.2	0.2
Subtotal	7.7	5.0
+10% Waste	0.8	0.5
Total	8.5	5.5
<b>Regimental Landing Team</b>		
Drinking	3.0	3.0
Personal Hygiene	1.7	1.0
Field Feeding	2.8	0.8
Heat Casualty Treatment	0.2	0.2
Division-Level Medical Treatment	0.4	0.4
Subtotal	8.1	5.4
+10% Waste	0.8	0.5
Total	8.9	5.9
<b>MEF</b>		
Drinking	3.0	3.0
Personal Hygiene	1.7	1.0
Field Feeding	2.8	0.8
Heat Casualty Treatment	0.2	0.2
Division-Level Medical Treatment	0.4	0.4
Hospital-Level Medical Treatment	0.9	0.9
Subtotal	9.0	6.3
+10% Waste	0.9	0.6
Total	9.9	6.9

Arid Zones	Daily Gallons-Per-Man Requirements	
	Sustaining	Minimum
<b>Company</b>		
Drinking	3.0	3.0
Personal Hygiene	1.7	0.3
Field Feeding	0.3	0.8
Heat Casualty Treatment	0.2	0.2
Vehicle Maintenance	0.2	0.2
Subtotal	5.4	4.5
+10% Waste	0.5	0.5
Total	5.9	5.0
<b>Battalion</b>		
Drinking	3.0	3.0
Personal Hygiene	1.7	1.0
Field Feeding	2.8	0.8
Heat Casualty Treatment	0.2	0.2
Vehicle Maintenance	0.2	0.2
Subtotal	7.9	5.2
+10% Waste	0.8	0.5
Total	8.7	5.7
<b>Regimental Landing Team</b>		
Drinking	3.0	3.0
Personal Hygiene	1.7	1.0
Field Feeding	2.8	0.8
Heat Casualty Treatment	0.2	0.2
Vehicle Maintenance	0.2	0.2
Division-Level Medical Treatment	0.4	0.4
Centralized Hygiene	1.8	0.0
Construction	0.5	0.0
Aircraft Maintenance	0.2	0.2
Subtotal	10.8	5.8
+10% Waste	1.1	0.6
Total	11.9	6.4
<b>MEF</b>		
Drinking	3.0	3.0
Personal Hygiene	1.7	1.0
Field Feeding	2.8	0.8
Heat Casualty Treatment	0.2	0.2
Vehicle Maintenance	0.2	0.2
Division-Level Medical Treatment	0.4	0.4
Hospital-Level Medical Treatment	2.8	2.8
Centralized Hygiene	1.8	0.0
Construction	1.5	0.0
Aircraft Maintenance	0.2	0.2
Laundry	2.1	0.0
Subtotal	16.7	8.3
+10% Waste	1.7	0.9
Total	18.4	9.5

Arctic Zones	Daily Gallons-Per-Man Requirements	
	Sustaining	Minimum
<b>Company</b>		
Drinking	2.0	2.0
Personal Hygiene	1.7	0.3
Field Feeding	0.3	0.8
Subtotal	4.0	3.1
+10% Waste	0.4	0.3
Total	4.4	3.4
<b>Battalion</b>		
Drinking	2.0	2.0
Personal Hygiene	1.7	1.0
Field Feeding	2.8	0.8
Subtotal	6.5	3.8
+10% Waste	0.7	0.4
Total	7.2	4.2
<b>Regimental Landing Team</b>		
Drinking	2.0	2.0
Personal Hygiene	1.7	1.0
Field Feeding	2.8	0.8
Division-Level Medical Treatment	0.4	0.4
Subtotal	6.9	4.2
+10% Waste	0.7	0.4
Total	7.6	4.6
<b>MEF</b>		
Drinking	2.0	2.0
Personal Hygiene	1.7	1.0
Field Feeding	2.8	0.8
Division-Level Medical Treatment	0.4	0.4
Hospital-Level Medical Treatment	0.7	0.7
Subtotal	7.6	4.9
+10% Waste	0.8	0.5
Total	8.4	5.4

# APPENDIX C

## GLOSSARY

### Section I. Acronyms and Abbreviations

AC.....	alternating current	ID .....	identification
ACE .....	aviation combat element	ISO .....	International Organization for Standardization
AIS .....	automated information system	ITD .....	inspection test date
AO.....	area of operations	ITO .....	invitational travel order
BSS.....	bread, shelf stable	Kcal.....	kilocalorie
BTU .....	British thermal unit	kW.....	kilowatt
BUMED .....	US Navy Bureau of Medicine and Surgery	LFS-4 .....	Facilities and Services Division, Services Branch, Food Service and Subsistence, Headquarters, Marine Corps
CE.....	command element	LP .....	Logistics Plans, Policies, and Strategic Mobility Division, Headquarters, Marine Corps
CIS .....	common item support	LPC-3 .....	Logistics Plans, Policies, and Strategic Mobility Division, Logistics Capabilities Center, Supply Chain Capabilities Team, Headquarters, Marine Corps
CLS.....	contractor logistics support	LPO.....	Logistics Plans, Policies, and Strategic Division, Logistics Operations and Sustainment Center, Headquarters, Marine Corps
CMC .....	Commandant of the Marine Corps	MAGTF .....	Marine air-ground task force
CONUS.....	continental United States	MCFFP ...	Marine Corps Field Feeding Program
CSSE .....	combat service support element	MCO.....	Marine Corps Order
DC, I&L .....	Deputy Commandant for Installations and Logistics	MCRP.....	Marine Corps reference publication
DLA .....	Defense Logistics Agency	MCW .....	meal, cold weather
DOD .....	Department of Defense	MCWP ..	Marine Corps warfighting publication
DOS .....	days of supply	MEDCOM .....	Medical Command
DSCP .....	Defense Supply Center Philadelphia	MEF .....	Marine expeditionary force
ERU .....	enhanced refrigeration unit	METT-T .....	mission, enemy, terrain and weather, troops and support available-time available
F .....	Fahrenheit	MHE .....	materials handling equipment
FBT.....	fuel bar, trioxane	MHG.....	MEF HQ group
FFSS .....	field food service system	MOS .....	military occupational specialty
FM .....	field manual	MOU .....	memorandum of understanding
FSO .....	food service officer	MPS .....	maritime prepositioning ships
FSU .....	field sanitation unit	MRDK .....	Marine rapid deployment kitchen
G-4 .....	Army or Marine Corps component logistics staff officer (Army division or higher staff, Marine Corps brigade or higher staff)	MRE .....	meal, ready to eat
Gal.....	gallon	MWSS.....	Marine wing support squadron
GCE .....	ground combat element		
GP .....	general purpose (4-3)		
HCP.....	health and comfort pack		
HDR .....	humanitarian daily ration		
HMMWV .....	high mobility multipurpose wheeled vehicle		
HNM.....	host-nation messing		
HNS .....	host-nation support		
HQMC .....	Headquarters, Marine Corps		
Hz .....	hertz		

NATO	North Atlantic Treaty Organization	RCW	ration, cold weather
NAVAIR	Naval Air Systems Command	RSFH	ration supplement, flameless heater
NAVMC	Navy Marine Corps	SOP	standing operating procedure
NAVMED	Navy Medical directive	T/E	table of equipment
NBC	nuclear, biological, and chemical	TISA	Troop Issue Subsistence Activity
NSN	National Stock Number	TM	technical manual
OCONUS	outside the continental United States	T/O	table of organization
OMMC	operation and maintenance, Marine Corps	TRH	tray ration heater
OPLAN	operation plan	TRHS	tray ration heating system
OPORD	operation order	UBR	unitized B-ration
PEB	pre-expendable bin	UDL	unit deployment list
PMU	preventive medicine unit	UGR-B	unitized group ration-B
POR	packaged operational ration	UGR-H&S	unitized group ration-heat and serve
QSFR	Quarterly Subsistence Financial Report	UHT	ultra high temperature
		ULSS	user's logistics support summary
		US	United States
		WRM	war reserve materiel

## Section II. Definitions

**A-ration enhancements**—Perishable items that are added to the meal for nutritional purposes (fresh fruits, vegetables, milk, bread, etc.).

**bread, shelf stable**—An enhancement to the meal, ready to eat, individually packed in a flexible pouch. It is in the form of a miniloaf or roll, provides 200 calories (mostly carbohydrates), and is available in both white and whole wheat.

**combat accountability**—A modification of normal (peacetime) operating accounting and reporting requirements, rendered necessary by combat conditions and implemented only when directed by the appropriate authority.

**common-service feeding**—The provision of meals by one Military Service to entitled enlisted personnel of another Service for which individual or Service reimbursement is not required. (From MCO 10110.34E)

**contract feeding**—Any feeding that is prepared by a contractor (inside/outside the continental United States) or host nation government outside the Service's mess hall, where individual meals are provided.

**cross-service feeding**—The provision of meals and/or bulk subsistence to members of Reserve components, other Military Services, and foreign governments which requires reimbursement from the agency receiving support. (From MCO 10110.34E)

**field duty**—Service by a member when the member is subsisted in a Government mess or with an organization drawing field rations as defined in Joint Federal Travel Regulations, Volume 1.

**field feeding**—Feeding of packaged operational rations or unitized ration while deployed on exercises/operations in an expeditionary/ austere environment.

**field mess**—A galley operated in the field, using field food service equipment.

**field support**—A method of feeding where the contractor or host nation procures only bulk food from an approved source of supply. The military services set up a field mess and prepare its own meals. Written agreements of support and payment, and approval of a funding source will be accomplished prior to support being provided.

**food service host-nation support**—Consists of selected subsistence items procured from the local economy and prepared by Marine Corps food service personnel.

**food service Marine**—An enlisted Marine in grades private through master gunnery sergeant who possesses military occupational specialty 3381, Food Service Specialist.

**food service officer**—A limited duty officer, chief warrant officer, or warrant officer who possesses military occupational specialty 3302. Food service officers are generally assigned at the Marine expeditionary force and major subordinate command level only. Also called **FSO**.

**fuel bar, trioxane**—A compressed, solid fuel bar used for heating water in the canteen cup for packaged operational rations. Also called **FBT**.

**health and comfort pack**—A Service contingency item designed to provide necessary health and comfort items for male and female personnel. Also called **HCP**.

**host-nation feeding**—Host nation feeding may consist of four types of support: host-nation support, host-nation messing, contract feeding, and field support.

**host-nation messing**—Consists of bulk food purchased for US military organizations (as opposed to individual servicemembers), with the host nation or contractor providing the food and its preparation. Host-nation messing differs from food service host-nation support in that the Marines actually receive full messing support in a foreign military or civilian dining establishment. Also called **HNM**.

**meal, cold weather**—The meal, cold weather is used to sustain an individual engaged in operations or training in cold weather environments or under arctic conditions. Also called **MCW**.

**meal, ready to eat**—The Marine Corps primary packaged operational ration. This packaged operational ration is designed to provide prepackaged individual meals containing food components that are ready to eat. It is suitable for use in the combat zone and under circumstances where resupply is established or planned but operational conditions preclude other means of preparing subsistence. Also called **MRE**. (From MCO 10110.34E)

**mess attendant**—An enlisted Marine outside the 3300 occupational field detailed to the food service platoon who assists in the serving of food and cleanup.

**packaged operational ration**—Rations composed of semiperishable items specially packaged, precooked, or prepared for personnel conducting combat operations in fighting positions or widely dispersed at remote sites. The packaged operations ration is designed for individual or group feeding when the tactical situation will not permit a field mess to be established. Packaged operational rations include the meal, ready to eat; meal, cold weather; ration, cold weather; bread, shelf stable; and ultra high temperature milk. Also called **POR**.

**ration, cold weather**—Rations used to sustain an individual engaged in operations or training in cold weather environments or under arctic conditions. Also called **RCW**.

**ration supplement, flameless heater**—A chemical reaction heater developed to heat meal, ready to eat and meal, cold weather entrees. Also called **RSFH**.

**tray ration heating system**—Composed of a tray ration heater and associated collateral and

support equipment that form a component whose singular purpose is the preparation of unitized group rations, heat and serve. The tray ration heating system is a mobile system with heat-on-the-move capability to feed 250 hot unitized group rations, heat and serve meals to personnel in remote areas. It is capable of being installed on a high mobility multipurpose wheeled vehicle cargo carrier. Also called **TRHS**.

**ultra high temperature milk**—An enhancement to operational rations, and is packaged in 8 oz. containers in four flavors (white, chocolate, strawberry, and vanilla.) Also called **UHT** milk.

**unitized B-ration**—Consists of semiperishable items, mainly canned and dehydrated, which do not require refrigeration. They are designed to sustain groups of military personnel when the tactical, logistical, and operational situation permits establishment of an organized field mess. UBRs are unitized in 100-portion modules, under a single NSN. Also called **UBR**.

**unitized group ration-B**—Consists of semiperishable commercial items, mainly canned/dehydrated which do not require refrigeration. They are designed to sustain groups of military personnel when the tactical, logistical, and operational situation permits establishment of an organized field mess. Unitized group ration-Bs are unitized in 50-man serving modules. The unitized group ration-B will replace the unitized B ration. Also called **UGR-B**.

**unitized group ration-heat and serve**—Consists of thermally processed, pre-prepared, shelf-stable food designed for short term group feeding situations or forward feeding of maneuver units or when the tactical, logistical, and operational situation precludes establishment of an organized field mess. Unitized group ration-heat and serve are unitized in 50-man serving modules, under a single National Stock Number. Also called **UGR-H&S**.

# APPENDIX D

## REFERENCES AND RELATED PUBLICATIONS

### Department of Defense Regulation

4145.19-R-1 Storage and Material Handling

### Navy Medical (NAVMED)

P5010 Food Service Sanitation

### Field Manuals (FMs)

5-20 Camouflage  
10-23 Basic Doctrine for Army Field Feeding and Class I  
Operations Management  
21-10 Hygiene and Sanitation  
21-10.1 Unit Field Sanitation Team

### Technical Manuals (TMs)

08407A-13/1 ISO Refrigerated Container Field  
TM 10673A-10/1 Enhanced Refrigeration Unit, 4500 BTU  
09211A-14&P/1 TRHS  
10879A-12 FFSS  
10757A-12&P Container, Food GB-7  
10756A-12&P Container, Beverage GB-3  
5-4540-202-12&P w/Ch 6 Immersion Water Heater  
10-7360-204-13&Pw/Ch10/A&B) The Range Outfit Field  
08955B/08958B-14&P/1 QuadCon  
4700-15-1H w/Ch 2 The Ground Equipment Record Procedures  
10-8340-211-13 Maintenance Manual for Tent General Purpose  
5-1080-200-13&P Maintenance Manual for LTWT Camouflage  
Screen Support System

### Marine Corps Orders (MCOS)

P1000.6 Acts Manual par. 3312  
P4400.39 War Reserve Materiel Policy Manual  
P10110.14 Food Service SOP  
P10110.25 Standard B-Rations for the Armed Forces  
P10110.42 Armed Forces Recipe Service Cards  
P10110.43 Armed Forces Recipe Service Index of Recipes  
10110.34 U.S. Marine Corps Food Service and Subsistence Program  
10110.40 Policy for Requisition, Issue and Control  
of Packaged Operational Rations



Marine Corps Forces, Pacific (MARFORPAC) Order/  
Marine Corps Forces, Atlantic (MARFORLANT) Order

P1011.2/P10110.2

SOP for Food Service

### Miscellaneous Publications

Federal Supply Catalog 8900-SL

Supply Bulletin 10-495-1

Marine Corps Bulletin 10110, *Meal Rates and Reimbursement Policy*

MIL-STD-1366, *Interface Standard for Transportability Criteria*

MIL-HDBK-1791, *Designing for Internal Aerial Delivery in Fixed Wing Aircraft*