

Marine Corps Field Feeding Program



US Marine Corps

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2 December 2013

FOREWORD

Marine Corps Reference Publication 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 in order 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 in an expeditionary environment through its flexible feeding methods. The MCFFP furnishes the capability to provide Marines the right meal, at the right place, at the right time. The feeding methods, rations, and equipment described in this publication provide commanders a variety of options to support sustained feeding operations in an expeditionary environment.

This publication supersedes Marine Corps Reference Publication 4-11.8A, *Food Services References*, dated 28 June 2004.

Reviewed and approved this date.

BY DIRECTION OF THE COMMANDANT OF THE MARINE CORPS



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CHAPTER 1

FUNDAMENTALS

The Marine Corps field feeding program (MCFFP) consists of the right mix of personnel, rations, equipment, and training in order to support the Marine air-ground task force (MAGTF) commander's expeditionary maneuver warfare and peacetime feeding requirements.

Concept of Organization

The MCFFP has three main components: personnel, equipment, and rations. Personnel and equipment are integrated at the lowest organizational level possible and support each unit's mission statement. The management of rations and ration components is inherent to each element of the MAGTF. Therefore, the operation plan (OPLAN) should be designed to maximize the use of organic assets in support of mission requirements.

Command Element

The Marine expeditionary force (MEF) headquarters group supports the MEF command element's initial flow of forces with organic resources using a mix of packaged operational rations (PORs) and unitized group ration-heat and serve (UGR-H&S). This organic capability sustains the command element until the operational situation allows for either a general support or direct support capability to flow in and provide additional capability. The logistics combat element (LCE) can be task-organized to provide personnel and equipment that will augment organic food service capabilities and ensure the highest quality support available within the unit's mission, enemy, terrain and weather, troops and support available-time available (METT-T).

Ground Combat Element

The ground combat element (GCE) has limited personnel and equipment to support a highly mobile combat operations; however, there is sufficient capability to provide PORs and UGR-H&S meals in forward static locations or by employing a mobile mounted concept of employment. This organic capability sustains the GCE until the operational situation allows for either general support or direct support capability to flow in and provides additional support resources. The LCE is task-organized to provide personnel and equipment that will augment organic food service capabilities and ensures the highest quality support available within the unit's METT-T.

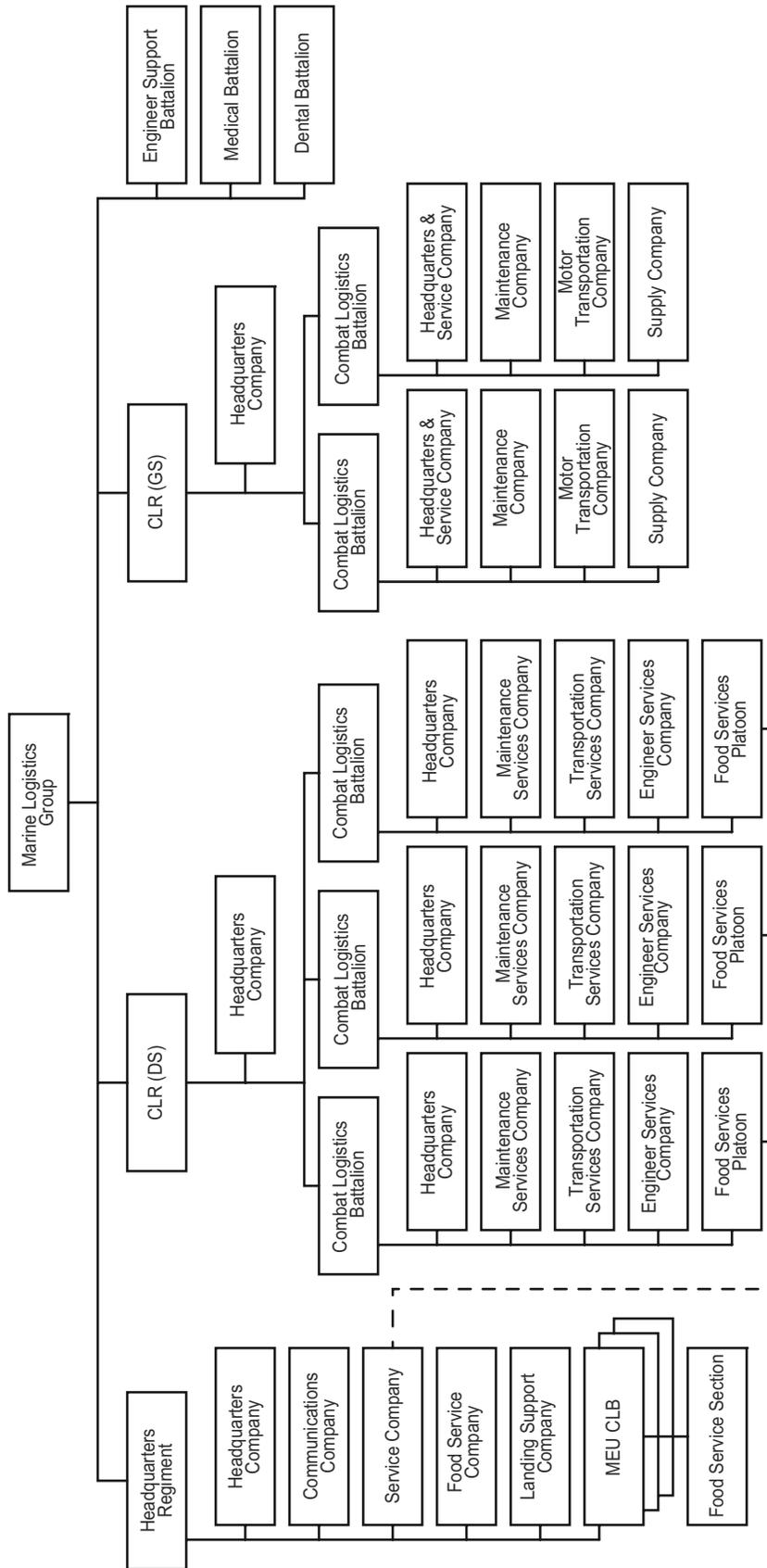
Aviation Combat Element

Organic personnel and equipment of the Marine wing support squadron provide field feeding support to the aviation combat element (ACE). The ACE's field feeding capabilities allow it to support the ACE's range of military operations and METT-T considerations.

Logistics Combat Element

The food service company of the LCE provides an organic food service personnel and field food service equipment capability to the LCE, which supports the range of military operations and METT-T considerations (see fig. 1-1 on page 1-2).

As the tactical and operational situation allows, personnel assigned to the food service company of the LCE provide general support and direct support food service capability to the GCE and command element. The LCE augments organic assets of the supported unit and should be task-organized to support mission requirements.



- Legend:**
 CLB - combat logistics battalion
 CLR (DS) - combat logistics regiment (direct support)
 CLR (GS) - combat logistics regiment (general support)
 MEU - Marine expeditionary unit

Figure 1-1. Notional Logistics Combat Element Organizational Chart.

Concept of Employment

The MCFFP supports the MAGTF commander in all theaters of operation. Deployed forces will subsist on a mix of rations that will consist of PORs, unitized group rations (UGRs), and enhancements. The family of field feeding equipment is used to prepare UGRs.

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 logistics warfighting function. 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. 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 provider. 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 US Service until allied logistic capabilities mature. During the first 60 days or before the establishment of a common item support manager, the Marine Corps has often supported these operations.

Organizational Responsibilities

The goal of food service support is to provide the right mix of personnel, rations, equipment, and training in order to support the MAGTF commander's field feeding requirements.

Deputy Commandant for Installations and Logistics

The Deputy Commandant for Installations and Logistics (DC, I&L); Assistant Deputy Commandant for Facilities and Services (Code LF) is the principal staff advisor to the Commandant of the

Marine Corps on food service matters. The Assistant Deputy Commandant for Facilities and Services also serves at the Commander, Marine Corps Installations Command (MCICOM). The MCICOM G-4 provides 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.

The Headquarters, Marine Corps (HQMC) I&L Department; Logistics Plans, Policies, and Strategic Mobility Division (Code LP); Logistics Plans and Operations Branch (Code LPO) is the designated Marine Corps point of contact for WRM program matters in both deliberate and crisis planning. The Logistics Plans, Policies, and Strategic Mobility Division is the approving authority for the release of ground WRM stocks during crisis execution. For budgetary planning, Class I training requirements and funding support are coordinated by the MCICOM G-4 with appropriate field commands. The MCICOM G-4 coordinates with the Marine Corps component commands, United States Marine Corps Forces Reserve (MARFORRES), and commands within the supporting establishment for the positioning of training stocks. 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

Defense Logistics Agency is a Department of Defense (DOD) agency. Defense Logistics Agency Troop Support is a primary level field activity of Defense Logistics Agency (DLA), and it is designated as a DOD executive agent for subsistence. It procures, inspects, stores, and distributes subsistence supplies and is responsible for supplying PORs, UGRs, and ultra-high temperature (UHT) milk. In addition, DLA Troop Support is responsible for sourcing fresh fruits and vegetables.

Theater Class I (Subsistence)

Commanders are responsible for determining an 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 outside the continental United States (OCONUS) the lead time is 60 to 90 days. The food service officer (FSO) at the component commander level makes recommendations regarding the implementation of the operational feeding policy and development of the feeding concept. Theater support in a joint operational environment is determined by the theater commander.

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*.

Deployment Planning

Food service support is a critical part of any unit deployment, requires the same level of deliberate planning as other commodities, and is a part of the operational planning team's logistical support plan. The senior FSO's input is vital to planning, providing advice and planning considerations that support the unit's time-phased deployment. Commanders should ensure that the final OPLAN or operation order (OPORD) specifies the required movement of personnel and equipment and defines the basic load for rations to be carried by individuals who are deploying.

At the MEF level, commanders are responsible for determining operational feeding policy. This should be established early in the planning process to deconflict potential problems and incorporate considerations for a time-phased approach to deployments and unit force flow into theater (or area of operations). The FSOs at the MEF G-4

and major subordinate command level make specific recommendations to the commander regarding the implementation of the operational feeding policy and development of the feeding concept. The MEF executes Class I support to the MAGTF using the LCE rations platoon.

Initially, deployment plans identify the use of PORs and, as the theater matures, progress to a meal selection of UGRs with A-ration enhancements when logistically supportable. 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 UGR-Bs augmented with the medical diet field feeding supplement. Types of rations will be discussed in chapter 3.

Prepositioned Stocks

Understanding prepositioned stocks for WRM and prepositioning objectives will be vital for operational planning teams and predeployment considerations. Marine Corps Order P4400.39 explains the purpose and intent for WRM and is supported through a performance-based agreement (PBA) between HQMC and DLA; HQMC I&L, Logistics Facilities and Services Division (Code LF) is the Marine Corps lead for this PBA. The PBA provides amplifying guidance to ownership and management responsibilities concerning operational rations, to include funding authorities and storage locations. Navy/Marine Corps Departmental Publication (NAVMC) 2907, *Prepositioning Objective for Maritime Prepositioning Force and Marine Corps Prepositioning Program-Norway*, provides the latest prepositioning objective for maritime prepositioning ships squadrons (MPSRONs) and Marine Corps Prepositioning Program Norway. The use of these references will be required for proper detailed planning and use of prepositioned assets.

Force Held Stocks

Landing force operational reserve material is prepositioned stocks for the specific purpose of

providing unit managed resources to ensure the Marine expeditionary unit (MEU) commander has 15 days of supply (DOS) of PORs on-hand to provide operational flexibility and Class I force sustainment.

Class I Availability

The area of operations Class I manager (with guidance from the commander) must determine the rations to be moved forward using a push system. Note that not all types of Class I may be available in each element of operations at the onset of hostilities. When the logistic support structure is in place, a pull system may be implemented. Using the pull system, the unit places a demand (ration request), and the LCE reacts to meet that demand.

Tactical Feeding

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 and flexible enough to meet the commander's intent.

Base Camp Feeding

Base camp feeding is the traditional field mess. Base camp feeding (feeding in a static environment) can be employed in combat or training, depending on the mission. Frequently, the LCE and ACE operate in static environments conducive to this type of feeding. Logistical requirements for displacing base camp feeding sites are sizable and must be exercised in training environments in order to support the operational need.

Forward Feeding Unit

Under the current MCFPP, infantry units have food service specialists and equipment assigned

to their table of organization and table of equipment, which provides commanders with a capability to employ resources as the tactical situation permits. One option is to send food service Marines forward with a tray ration heating system (TRHS) mounted in a tactical vehicle to support dispersed 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 linkup site. A second option is for food to be prepared in the base camp field mess, sent forward in insulated containers, and served.

Logistics Civil Augmentation Program

Theater support in a joint operational environment, as determined by the theater commander, may be provided by contractors as part of the logistics civil augmentation program (LOGCAP) and in accordance with joint policy for base camp operations.

Logistics civil augmentation program is a US Army initiative for peacetime planning for the use of civilian contractors in wartime and other contingencies to provide preplanned logistics and engineering/construction support. These contractors perform selected services to support US forces in support of DOD missions. Use of contractors in a theater of operations allows military units to support other missions or shortfalls and provides an additional means to adequately support the force. The LOGCAP is primarily designed for use in areas where no bilateral or multilateral agreements exist with the host nation. However, LOGCAP may provide additional support in areas with formal host-nation support (HNS) agreements, where other contractors are involved, or where peacetime support contracts exist. Additionally, LOGCAP is available during CONUS mobilizations to assist the CONUS support base and help units get ready for war.

Tactical Food Services Support Responsibilities

Unit Commander

The unit commander responsible for field food service operations will ensure that:

- The unit has all authorized field food service equipment listed in the table of equipment (serviceable and SL [stock list]-3 complete).
- Personnel are trained and personnel support requirements are available.
- 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 UGR.
- Personnel strength data (present for duty by Service component) is provided to the mess chief in a timely manner.

Food Service Officer and Food Service Technician

The FSO and the food service technician are responsible for advising commanders on the employment of available resources, assisting the mess chiefs, and assisting in resolving food service related problems. The FSO must be thoroughly familiar with the MCFFP 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 Specialists

Food service specialists are trained to prepare all meals in the family of combat rations. Staffing is based on the feeding standard as established by the commander's capability to serve two hot meals daily, which is METT-T dependent.

Mess Attendant Support

The commander is responsible for tasking supported units with mess attendant support to the field mess. The use of the UGR increases the sanitation requirements as well as the overall 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.

Combat Service Support Food Personnel

The Marine logistics group coordinates the personnel and equipment required to support the MAGTF's Class I requirements.

Food service personnel sustain operations ranging from military support, to domestic relief operations, to foreign humanitarian assistance, to peacekeeping operations and armed conflicts. Field feeding operations will reflect the mission of the MAGTF element supported. The MCFFP adjusts for those differences and provides a variety of equipment and rations to support any situation. The primary mission of food service personnel is to provide food service and Class I support to deployed forces. The FSO may be required to provide technical assistance in the development of requirements documents for the contracting of food service support in situations that require the feeding of a civilian population during humanitarian support efforts.

CHAPTER 2

DEPLOYMENT PLANNING

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 must 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 chemical, biological, radiological, and nuclear (CBRN) environments.

Deployment planning begins with forecasting requirements to support the OPLAN and the commander's intent. Food service planning in hostile environments must be flexible and tailored to support the tactical situation along the entire operational continuum.

When the theater of operations is initially activated or if hostilities arise, all Class I distribution system components may not be in place; therefore, units may not have the luxury of choosing the rations they will consume. The OPLAN and the approved feeding concept will identify when distribution units and equipment will be phased into the operation and when each type of ration should arrive in theater.

Additional food service factors that may be included in the OPLAN are environmental protection, fuel, water, ice, waste disposal, subsistence inspections, residuals, sanitation inspections, refrigeration assets, transportation of Class I, and convoy support requirements. The deployment planning considerations provided in

appendix A should be used as a guide for unit deployment planning. Additionally, appendix B provides checklists, flowcharts, and food service capability sets that can be used to assist in the deployment planning process.

Unit Preparation

Actual staffing of food service specialists and mess attendants are directly related to the type of operation and feed plan. Most OPLANs or OPORDs define a time-phased force flow, which is dependent on the operational environment. The OPLAN should also identify the planned use of prepositioned assets or WRM supporting the operation or exercise. The ration transition support plan in figure 2-1, on page 2-2, illustrates MCFPP methodology.

Concept of Support

The MCFPP supports the MAGTF commander in all theaters of operation, using the commander's intent and mission requirements as outlined in the corresponding OPLAN or OPORD. With this information, it is incumbent on the senior FSO within the unit to develop a concept of support to sustain the operation. The concept of support should be developed using all the information provided in this publication as well as the listed references.

Support Structure

The required number of food service specialists to support mission specific taskings should be determined by a subject matter expert (FSO/food

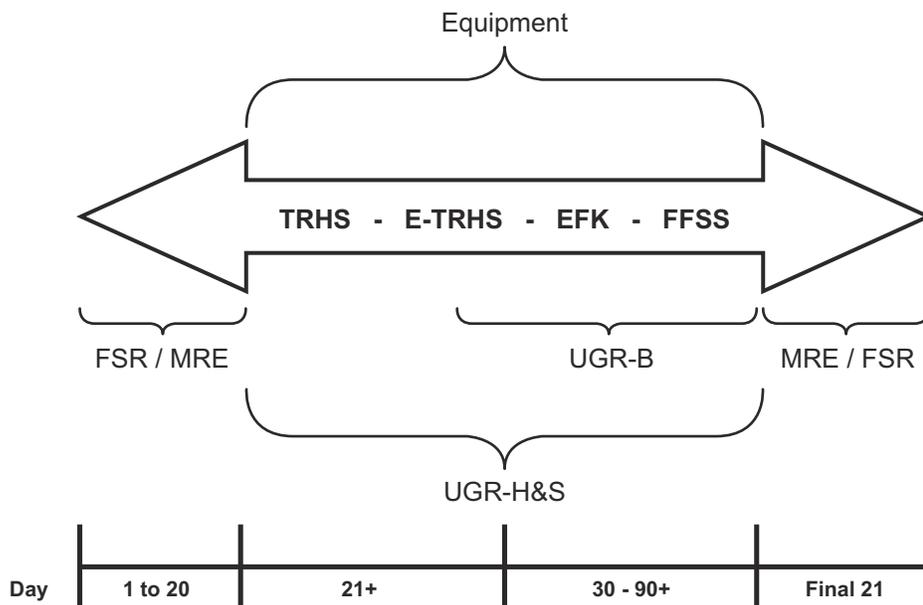


Figure 2-1. Rations Transition Support Plan.

technician). The actual number of personnel will depend on the feed plan, equipment, location, and numbers of static or remote feeding sites:

- Field food service system (FFSS) operations. Sixteen food service specialists per FFSS. For specific structure, by grade, see unit table of organization.
- Expeditionary field kitchen (EFK) operations. Eight food service specialists per EFK. For specific structure, by grade, see unit table of organization.
- Enhanced-tray ration heating system (E-TRHS) operations. Three food service specialists per E-TRHS. For specific structure, by grade, see unit table of organization.
- TRHS operations. Three food service specialists and one driver (when mobile mounted) per TRHS. For specific structure, by grade, see unit table of organization.

Other manpower considerations when supporting the field feeding mission include the following military occupational specialties (MOSs):

- 1141–electrician.
- 1142–electric equipment repair specialist.

- 1161–refrigeration mechanic.
- 1171–hygiene equipment operator.
- 1345–engineer equipment operator.
- 3531–motor vehicle operator.

Field mess attendants support is developed in coordination with type of equipment and rations being used to sustain the operation. Specific requirements will be commensurate with the level of food service expected from the command. A traditional ratio of 1 mess attendant per 25 Marines being supported has been used for large-scale field feeding operations.

Note: In accordance with MCO P1000.6G, Assignment, Classification, and Travel Systems Manual, food service specialist, MOS 3381, will not be assigned meal verification, cash collection, or mess attendant duties.

Shipboard Staffing

Navy personnel for shipboard messing are staffed to meet the requirements of the ship's crew. Additional personnel are required to augment Navy food service specialists and messmen when Marines are embarked. Different Marine Corps

food service specialist and messmen augmentation ratios have been established by HQMC for the categories of total embarked Marines, enlisted Marines, staff noncommissioned officers, and officers (see table 2-1).

The embarked Marine shipboard staffing ratio is 1:72 food service specialists to Marines embarked. A messman (food service attendant) ratio of 1:18 (1 messman for every 18 troops embarked) will be used to compensate for the reduction of total food service specialists.

The number of messmen furnished for the chief petty officer/staff noncommissioned officers mess will remain at a ratio of 1:15, and the number of wardroom messmen assigned will remain equal to 12 percent of the embarked officer population. Additionally, updating development of memorandums of understanding memorandums of agreement between the embarking unit and the ship to detail modifications to specific augmentation requirements that may be required.

Training Exercises

Food service specialists must be trained to operate effectively within the MCFFP. Military occupational specialty specific training should include—

- The operation and maintenance of all tables of equipment.
- Subsistence requisitioning, receipt, storage, accountability, issuance, and distribution procedures.
- Safe food handling regulations.

- Preparation and serving procedures.
- Environmental stewardship responsibilities.
- Sanitation procedures.
- Operational planning.
- Retrograde procedures.

In accordance with NAVMC 3500.35, food service specialists need to stay current with all unit training activities concerning military battle skills. Training plans should include unit specific tactics, techniques, and procedures such as, map reading, convoy operations and security, rear area security, setup and employment of crew-served weapons, and patrolling.

A “train as you expect to fight” mentality must be established to ensure a high state of readiness. With this understanding, many of the steps involved in unit deployments will be the same whether deploying in support of exercises or real world events.

Basic training considerations are as follows:

- Understand the commander’s intent: mission or the operation’s objective.
- Define how food service will be used to support the commander’s intent. Complete this by using the OPLAN and/or OPORD to define overall mission requirements (e.g., duration, personnel to be supported, force laydown, unit’s scheme of maneuver).
- Use the rations transition support plan to develop a basic feed plan (use the feed plan

Table 2-1. Augmentation Ratios.

Embarked Troops	Food Service Specialists	Messmen	Total Augmentation Required
100	2	6	8
300	4	17	21
500	7	28	35
700	10	39	49
900	13	50	63
1100	15	61	72
1300	18	72	90

matrix found in appendix C or automated food management information system).

- Determine organic table of equipment and table of organization to support mission requirements.
- Submit Class I requisition/request in accordance with published timelines.
- Coordinate supporting activities required for the field mess (i.e., power, bulk and bottled water, fuel, materials handling equipment [MHE], or other support requirements).
- Develop an embarkation plan per unit standing operating procedure (SOP).

Contingency Operations

During contingency operations, additional considerations to the concept of support include the following:

- Determine required planning lead time.
- Understand if the unit is deploying its own table of equipment, falling in on established allowances, or using prepositioned assets.
- Coordinate with DLA Troop Support for (determine how long it will be before DLA Troop Support can source Class I support by using designated area coordinators or regional representatives)—
 - ◆ Area food and water risk assessment.
 - ◆ Available sources of supply in the region.
- Establish who the executive agent will be for Class I in the region.
- Coordinate with US Army Public Health Command (USAPHC) for approved sources of supply if DLA Troop Support is not the initial Class I provider.
- Develop Class I reporting procedures for subordinate units.

War Reserves

The majority of Marine Corps Class I WRMs are owned and held by DLA, including those aboard MPSRONS, and they are maintained as protected USMC WRM levels. Rations are procured and

held as landing force operational reserve material with Military Personnel, Marine Corps (MPMC) funding. The Logistics Plans, Policies, and Strategic Mobility Division and Logistics Facilities and Services Division/MCICOM review, on an as-required basis, the methodology that calculates all Class I items to support each MEF and United States Marine Corps Forces Reserve WRM for budgetary planning, and deterioration loss factor for UGR will be included in the computation. These requirements will be calculated for the full planned period of support required for the scenarios authorized for sustainability planning in MCO P4400.39.

Computation of WRM for all Class I items is based on the approved force list, planned mobilization support requirements, and the food service portion of Annex D (Logistics) to the OPORD.

Meals, ready to eat (MREs) are held as WRMs and are Marine Corps managed. The ability of the Marine Corps to maintain adequate levels of MREs to meet peacetime training and MAGTF sustainment requirements is directly related to shelf life and stock rotation policies. The MCICOM G-4 is responsible for budgeting and satisfying these requirements. Assets will be positioned with Marine Corps forces only to the degree that timely stock rotation can be accomplished. These stock levels should be equal to one-half the operating level plus the safety level for a Marine expeditionary brigade (MEB)-sized MAGTF. A shortfall in training requirements will affect the capability to sufficiently rotate WRMs.

Maritime Prepositioning Force

The purpose of prepositioned assets is to place military units, equipment, or supplies at or near the point of planned use or at a designated location to reduce reaction time and to ensure timely support of a specific force during the initial phases of an operation. Field feeding equipment and Class I supplies are part of the maritime prepositioning force (MPF) capability and are designed to support a notional, MEB-size element in accordance

with Marine Corps Bulletin 3501, *Maritime Prepositioning Force (MPF) Force Lists (F/L)*.

Prepositioning objectives are established by commodity for equipment and supplies, and they are published annually by table of authorized materiel control number (TAMCN) in NAVMC 2907. The following must be considered during MPF operations:

- Equipment items needed to support the MPSRON are spread-loaded across vessels that make up the squadron.
- A small amount of food service equipment, consisting of six E-TRHSs and supporting gear, is maintained on the weather deck of a designated ship within the squadron. This capability set is designed to be offloaded quickly in order to support quick reaction missions (as directed) or the arrival and assembly stage of an MPF off-load.

Each MPSRON contains a basic load that is meant to sustain the force until follow-on support can be established. Ration shelf life limits Class I stockage levels to a point that can be rotated and managed according to annual training events. A total requirement to support the force list, as published in MCBul 3501, is not attainable. The senior food service Marine responsible for operational support must be familiar with the specific Class I prepositioning objective associated with the designated MPSRON. Using unit force flow numbers, most MPSRONs contain enough MREs to support the initial 15 DOS (to a notional MEB-sized force); therefore if the force size is smaller, then the DOS will increase, making force size information critical to the planners in order to make the best use of deployment lead time. Follow-on Class I should be requested in accordance with the PBA and can be shipped via air or sea.

Requests for General or Direct Support

General support or direct support relationships exist between the MAGTF's LCE and its GCE and command element and will serve as the

primary means of generating and filling mission requirements. The originating request should flow through established routes from the supported unit to the designated supporting unit. On occasions when mass unit deployments prevent the LCE from supporting organic requirements and general support/direct support tasking, shortfalls will be forwarded to the MEF for MEF-wide sourcing. When tasked, the LCE provides personnel and field feeding capability commensurate with the supported unit's requirement. The LCE augments the supported unit's organic capability in order to execute the field feeding mission. The LCE possesses all TAMCNs associated with the family of field feeding equipment and can employ any or all of its capability as required. Although, both general and direct support scenarios are METT-T driven, a standard support plan is not possible due to differing planning factors. To ensure a consistent level of support, the following planning factors may apply:

- General support scenarios may call for the LCE to establish a static feed site that supports base camp operations at a logistic hub, which supports transient unit populations as well as intrinsic personnel.
- Direct support scenarios may require the LCE to establish a base camp feed site for GCE units in forward operating bases. In this case, organic personnel and equipment would either be pooled for large group feeding or pushed to unit supported battle positions throughout their area of operations. The LCE will serve as the overall direct support coordinator of food service operations for the specific tasking.

Marine Corps Air-Ground Combat Center Training Support

Numerous exercises are conducted at the Marine Air-Ground Task Force Training Command, Marine Corps Air-Ground Combat Center Twenty Nine Palms each year. Units are required to coordinate training Class I requirements with the exercise support detachment when training at

Camp Wilson. Units must contact the exercise support detachment S-4 when requesting Class I support and provide a complete feed plan 45 days in advance of the training exercise.

The training center has a limited field food service equipment allowance pool so units requesting to train aboard Marine Corps Air-Ground Combat Center will need to bring their own field feeding equipment. Equipment may be provided when requested through Twenty-nine Palms Base food service office. If the unit has a requirement to train on a specific piece of gear, the request must state the details of the requirement so the base food service can coordinate the support. Mess attendant duties at Camp Wilson are supported with a civilian contract so that unit personnel can maximize training opportunities. Food service specialist support is provided while at Camp Wilson through a staffing agreement between I and II MEF to fill the table of organization allocations.

Non-Class I Requirements

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 a Class I item, it will not be purchased with subsistence funds; Operations and Maintenance, Marine Corps (O&MMC) funds will be used. Additional ice calculation planning factors can be found in appendix D.

Fuel Requirements

The planning factor for fuel requirements in support of food service equipment depends on the specific platform the unit is using (fuel calculations can be found in app. E). It will be important to determine if fuel for power generation requirements are being supported by the engineers or food service. Once this determination is made, it is the responsibility of the unit mess chief to

ensure the proper levels of DOS are maintained throughout the operation.

Water Requirements

Water is an essential element in the MCFPP; therefore, proper planning considerations must be adhered to in an effort to ensure safety. The water capacity of the empty TRHS is 40 gallons. When tray packs are inside the TRHS, the approximate amount of water required for proper heating is 10 gallons. When using the UGR-B, an average of 25 gallons of water per day is required to prepare food and beverages (two hot meals) for 50 people. Additional water is required for general sanitation and cleaning of field food service equipment and utensils (water calculation planning factors can be found in app. F). See Marine Corps Warfighting Publication 4-11.6, *Petroleum and Water Logistics Operations*, for water planning factors based on unit size and climatic conditions.

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. Using approved sources of supply helps eliminate the risk of food tampering and ensures that food vendors have security measures in place to protect the integrity of the supply chain down to the using unit.

Records, Logs, and Publications

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

Deployment Databases

The unit automated information system (AIS) contains deployment databases that identify lift requirements. Unit AIS garrison databases reflect all table of equipment assets to include embark boxes and containers on-hand at the unit level. Depending on the level of information maintained by the unit, the database may include the national stock number (NSN), item identification, and the package identification.

There is a distinct difference between the unit AIS garrison database plan and the unit deployment list (UDL). The unit AIS garrison database lists all table of equipment assets and their containers. The UDL shows only those assets the unit will deploy to meet the logistic needs of the unit commander, which shows the unit lift footprint and provides visibility of the entire unit's food service equipment.

Deploying units (MEU, MEB, and MEF) establish an equipment density list (EDL) allowance and determine sourcing agencies for equipment in support of operational requirements. The EDL is a TAMCN list of items required to support a deployment. The EDL reflects all equipment beyond each element's table of equipment as well as other equipment determined necessary by higher headquarters. Equipment received in support must be loaded onto a unit's consolidated memorandum receipt and into mechanized allowance list upon receipt; reconciliation with unit supply must ensure all EDL items match the consolidated memorandum receipt and mechanized allowance list.

Class I Distribution System

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 of the LCE and/or the MAGTF planning cell determines 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 supported unit feeding capabilities. A push system ensures that rations are available in the operational area, and ration types and variety will mature as the operational situation stabilizes. An intermediate rations break point will need to be established in the rear operating area. The purpose of the break point will be to ensure that large bulk containers, which are direct shipped from the ration assembler with a single menu, are reassembled into mixed container loads for forward movement; thereby ensuring that multiple menus are available to the using units.

Pull System

The MCFFPs policies and procedures are based on a pull system. A pull system has the supported unit placing a demand on the Class I supply system. Class I is sent forward to satisfy the request from the supported unit. This system provides asset visibility and single point of control over subsistence supplies, while being responsive to supported units.

Distribution Variances

The actual Class I distribution system may differ based on the METT-T. Factors to consider include Class I supply point locations, convoy schedules, method of distribution (unit or item), types of rations, and Class I issue time. Specifics of the Class I distribution system for deployment planning are also available from various unit documents, such as Annex D (Logistics) of the OPOD or letters of instruction or directives.

Weather Conditions

Hot Weather

When conducting field operations where the ambient temperature is routinely above 90 °F, careful planning must be conducted to ensure a safe operating environment is established and maintained. In these conditions, temperatures can exceed 140 °F under tents during mid-day hours, cooking and serving food during these extreme conditions increase the risk of heat casualties.

Cold Weather

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. The minimum caloric requirement for Marines operating in an extreme cold weather environment is 4,500 calories per day. Menu planning; cold weather (MCWs), use of meals; and Class I supply/resupply requirements must be designed to allow for the increased calories required in these environments.

Extreme Weather

Extreme weather conditions have adverse effects on equipment operations as well. A continuous preventive maintenance program is required to reduce malfunctions of equipment due to sand, dirt, and corrosion.

Class I Site Selection

Each Class I point must be accessible to the source of supply and the supported units. Class I distribution points may be collocated near other classes of supply and supply distribution 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 vehicle mobility. 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 and allow for proper site management.

Size

The site should be large enough to handle the estimated volume of Class I supplies and MHE. A parking area is needed for vehicles stopping at the control point, loading and unloading supplies, and 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 collateral damage that may be caused by enemy indirect fire. Dunnage can be used to keep the supplies off the ground. Tents, sunshades, and tarpaulins should be used to provide protection when buildings are not available. Lighting must be adequate for safety and security. The perimeter should be fenced and control points established at each exit and entrance. Figure 2-2 and figure 2-3, on page 2-10, show the suggested layout for a rear area and 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

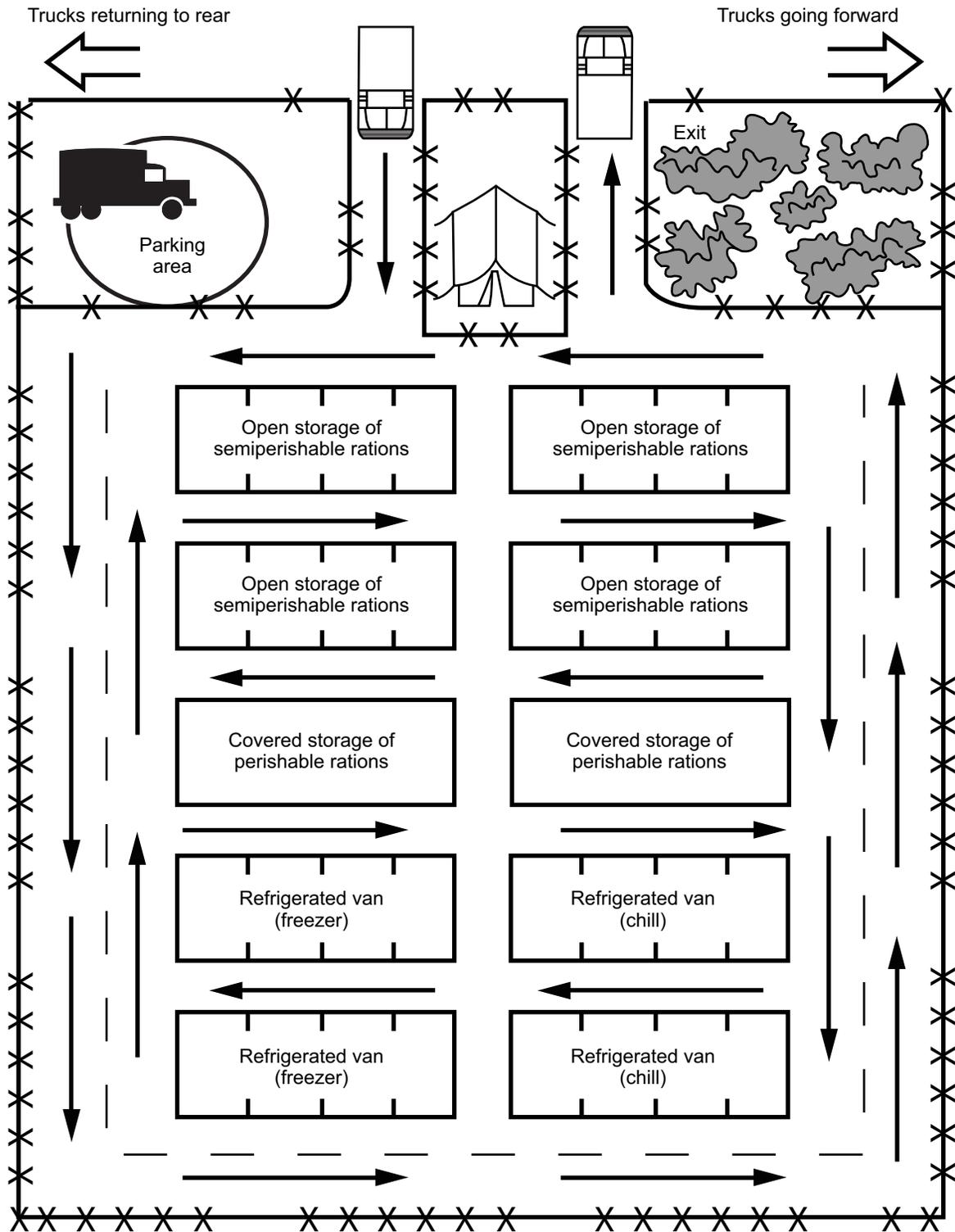


Figure 2-2. Rear Area Class I Supply Point.

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.

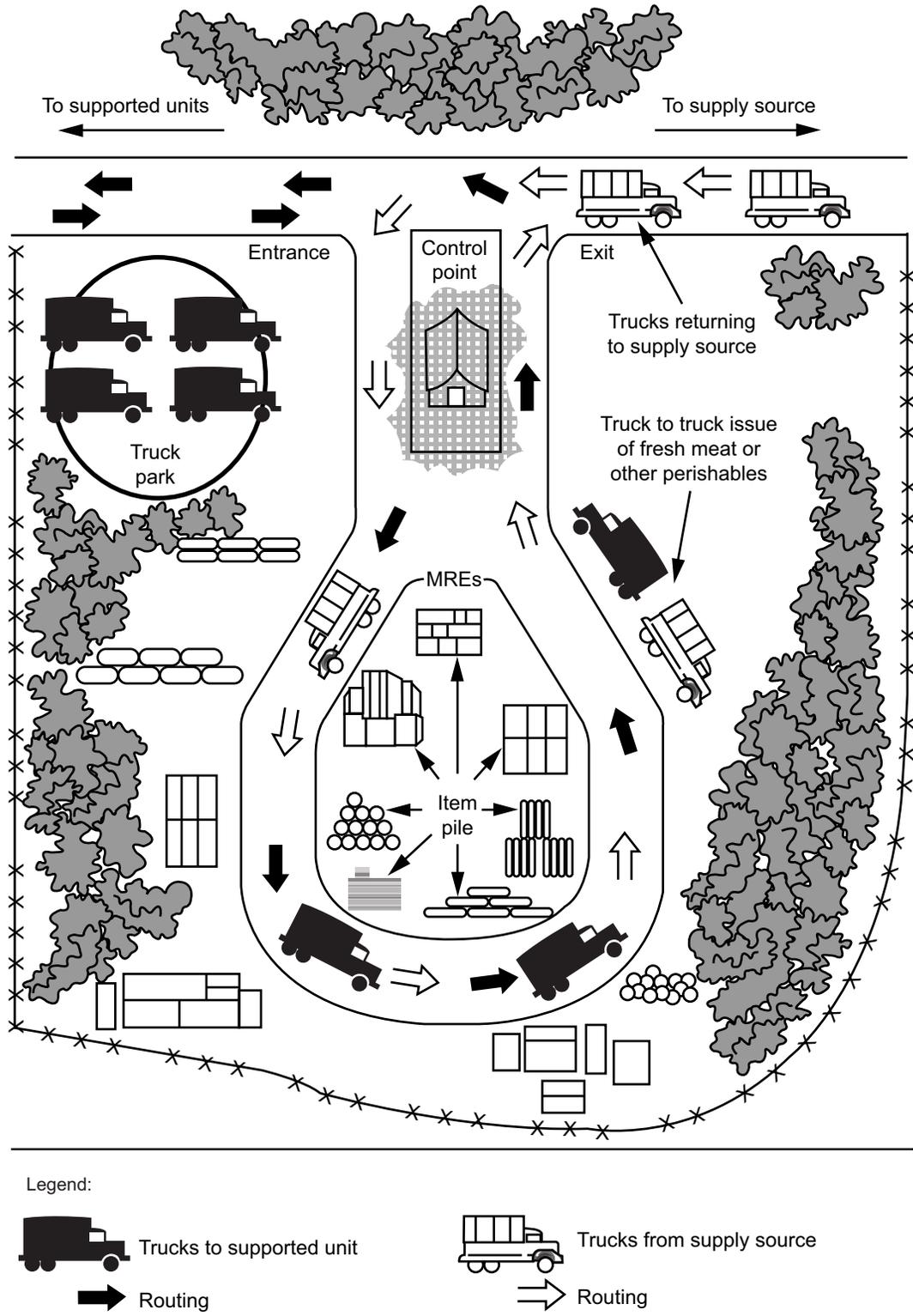


Figure 2-3. Forward Area Class I Supply Point.

Defense

Three-strand concertina wire is used to define the site's perimeter. The concertina wire is interlaced with sensors 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.

Camouflage

The subsistence supply point and field mess area must be concealed to prevent detection by enemy aircraft, ground forces, or infrared sensors. Precautions are as follows:

- Do not let Marines 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 setup near combat or hostile areas.
- Bury or retrograde disposable dishes and utensils, tin cans, and litter from packaged rations.
- Camouflage the area where refuse is buried.
Note: 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 area of operations.
- 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 PORs.

Field Mess Site Selection

The unit commander specifies the general location of the field mess site. However, the mess

chief must consider the following characteristics when selecting a good field site:

- Good natural cover shields Marines from the enemy and protects them from sun, heat, and cold winds.
- Good access roads let supply trucks move freely.
- High and dry ground near a protected slope ensures good drainage and protection from the wind.
- Adequate space eliminates crowding of Marines and facilitates spreading out the equipment so that personnel can work efficiently.
- A nearby source of potable water is needed for use 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 setup of the equipment.

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.
- Tents and building usage.
- Billeting area location.
- Convenient water source for purification when needed.
- Location away from heads or any source of contaminants.

Figure 2-4, on page 2-12, suggests placement of a rear area field mess when using the EFK; similar considerations could be applied using other field feeding platforms. 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.

Field Feeding Options

Field feeding options include either a semipermanent site or the use of TRHS. 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. 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. Use the following to determine which option to employ:

- Availability of equipment and personnel.
- Capability of the logistic system.
- Level of commitment.
- Availability of rations.
- Total sanitation requirements.
- The number of personnel to be fed.
- Feeding times.
- Location.
- Mission.

Each field feeding option 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 through their area. Food service personnel should be responsible for the transportation, setup, and feeding of units away from the field

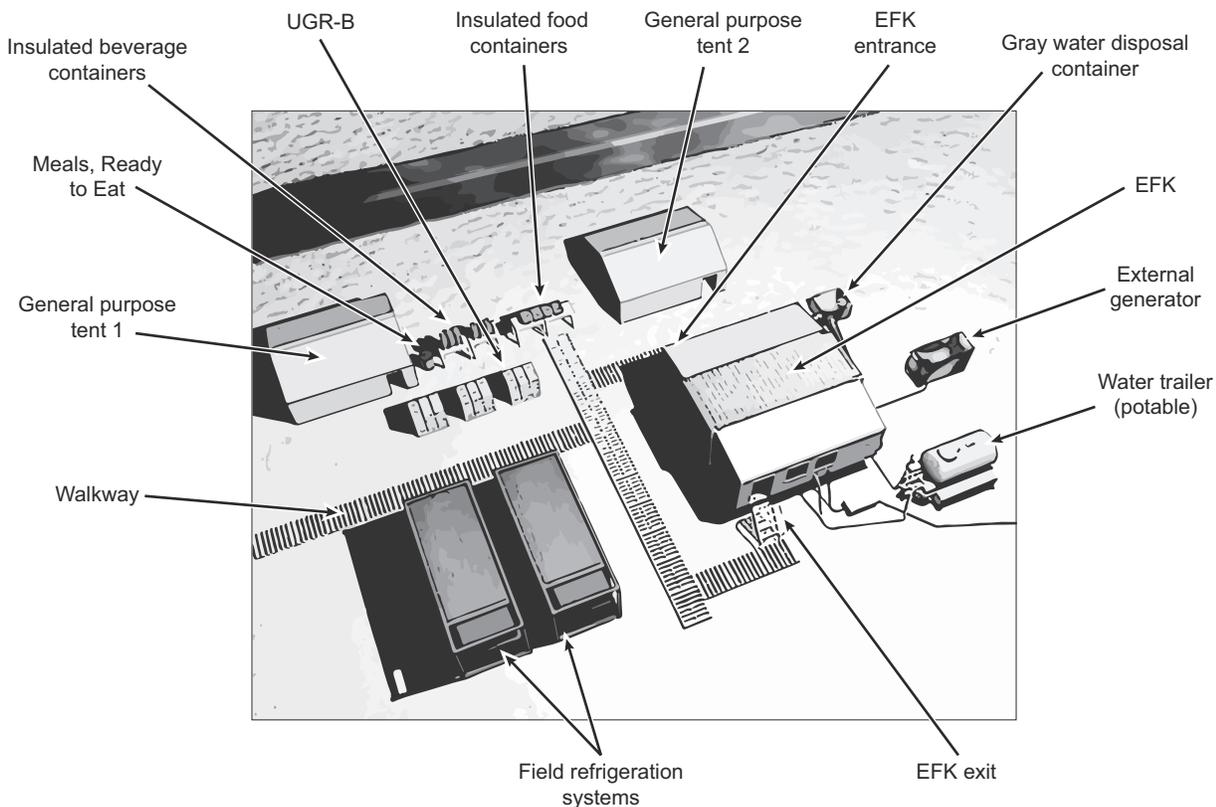


Figure 2-4. Recommended Expeditionary Field Kitchen Layout.

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.

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.

Redeployment

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 en route 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 the commander and staff will ensure smooth unit movement.

Following the correct procedures for closing the field mess and Class I areas of operations is extremely important. Consideration must be given to the environmental impacts caused by soakage pits, grease traps, trash pits, and incinerators. For more information on closing the field site, MCWP 3-17.6, *Survivability Operations*, and MCRP 4-11.1D, *Field Hygiene and Sanitation*, provide information on closing the field site.

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. The mess chief is responsible for ensuring that logistical requirements are identified to the S-4 officer. They will also provide specific food service needs such as convoy rest halts, railhead support, and overnight commitments.

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CHAPTER 3

RATIONS AND SUSTAINMENT

The MCFPP supports the MAGTF commander in all theaters of operation. Deployed forces will subsist on a mix of rations that will consist of PORs, UGRs, and A-ration enhancements as described in MCO 10110.14M, *Marine Corps Food Service and Subsistence Program*.

A ration is an amount of food that is nutritionally adequate to feed one person for one day (3 meals). Major subordinate command FSO/food technician/mess chief will provide commanders with options for choosing the appropriate ration that best supports the commander's tactical situation.

See the DLA Troop Support's webpage at www.troopsupport.dla.mil for more information on types of rations available, menus, and ration specification.

Unitized rations include UGR-H&S, UGR-B, and UGR-A. Packaged operational rations include MREs, first strike ration (FSR), religious meals (i.e., kosher and Halal), and UHT milk. A-ration enhancements should be added to PORs and unitized ration meals to increase dietary fiber and troop acceptance. Under certain conditions, field contract meals and host nation messing (HNM) are also authorized.

Planning Considerations

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 UGR-B and UGR-H&S. The UGR-A is by exception only, primarily due to the logistical requirement for distributing the ration. The UGR-A is primarily used by the US Army, who

is better equipped to support the use of this ration. The inclusion of two UGRs in the standard of three quality meals per day is based on units having the required personnel and equipment necessary for implementation.

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. The FSR is a 24-hour ration, designed for long-range patrols and makes a viable option for the first 72 hours of conflict due to its cube and weight reductions over other PORs. Examples of the right time and place for Marines to use the POR can include conducting combat operations in fighting positions or when widely dispersed at remote sites. Packaged operational rations should not be used as the sole daily diet beyond 21 days and FSR should not be the sole diet beyond 3 consecutive days. The UGR-H&S is used as a bridge between the POR and the UGR-B. The UGR-B should be used when units are located in more static regions on the battlefield or area of operations. These meals require more time and resources to prepare and depend upon a secure area and the logistical capability to sustain operations.

Operational planning shall be based on the following ration mix:

- Days 1 to 21 consist of PORs (FSR or MRE).
- 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 and POR, one meal per day.
 - ◆ 50 percent—UGR-B (or by exception UGR-A), two meals per day and POR, one meal per day.

Unitized ration meals are introduced into the feed plan as soon as the tactical, operational, and logistical situation permits. The feed plan is a standard form supplied by the FSO to plan for the introduction of standard ration mixes in accordance with the unit mission and is METT-T dependent. See Appendix C for an example.

Patients in field hospitals will receive three hot UGR-B ration meals daily and these meals are augmented with a medical diet field feeding supplement as necessary. Meals, ready to eat are authorized for patients in hospitals only in emergencies or when other rations are not available. Perishable supplies will be added to the menu as they become available.

Types of Rations

Packaged Operational Rations

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. Meals, ready to eat are packaged meals designed for consumption as individual meals or in multiples of three as a complete day's ration. Except for 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 entree. Each meal provides an average of 1,250 calories (13 percent protein, 36 percent fat, and 51 percent carbohydrates). Each box contains 12 meals. The net weight per case is approximately 22 pounds and the 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.

First Strike Ration

The FSR is a compact, eat-on-the-move assault ration designed for short durations of highly mobile and/or high intensity combat operations.

The FSR is substantially reduced in weight and cubic size, which enhances warfighter consumption, nutritional intake, and mobility. The intended purpose of the FSR is for usage during the first 72 hours of a conflict in lieu of using MREs, which are heavier and more voluminous. The FSR has nine packs per shipping container consisting of three each of three different menus.

Note: This is a ration or the equivalent to one full day of food for one person. One ration equals three meals. Therefore, one FSR would be used in lieu of three MREs.

The net weight per case is approximately 29 pounds and the size is .99 cubic feet. The net weight per pallet is approximately 1,442 pounds and the size is 52.3 cubic feet.

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 entree and religiously certified/acceptable complementary items sufficient to provide the recommended daily nutritional requirements. It is a self-contained meal; however, it is not combined in a flexible meal pouch. Each case of religious meals contains 2 intermediate boxes: 1 box with 12 entrees and 1 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 entree. Each meal provides an average of 1,200 calories (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.

Note: All requests for religious meals are to be submitted using the annual operational ration requirement to allow for processing and delivery.

Humanitarian Daily Rations

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

Note: MCFPP family of combat rations are not intended for or authorized for humanitarian feeding.

Unitized Group Rations

See table 3-1, starting on page 3-4, for a list of UGR specifications.

Enhancements

An enhancement is the subsistence item added to the meal for nutritional purposes (e.g., fresh fruits and vegetables, milk, bread). 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 DLA Troop Support-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 an Army veterinary service team or Navy preventive medical unit.

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 introduction 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 table of equipment assets (i.e., organic tactical refrigeration, refrigerated International Organization for Standardization [ISO] containers from MPSRONS, and contracted refrigeration).

Enhancements to Packaged Operational Ration

A-ration enhancements are authorized for use with POR (FSR or MRE) only when PORs are the sole daily diet. A-ration enhancement items will be limited to hot/cold beverages, soups, and fresh fruits and vegetables. The amount of monetary supplement authorized for POR enhancements is limited to 8 percent per POR box cost that was consumed. The cost of the UHT milk is not included in the authorized 8 percent supplemental allowance.

Enhancements to Unitized Group Rations

When tactical, operational, and logistical situations permit, A-ration enhancements may be added to UGR-H&S, UGR-B, and UGR-A meals to provide a complete menu. Authorized A-ration enhancements consist of bread, milk, cereal, fresh fruits, fresh 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 20 percent of the module cost of the primary ration consumed. The UHT milk costs are not included in the 15 percent (CONUS) and 20 percent (OCONUS) supplemental allowance for exercises.

Table 3-1. Specifications for Unitized Group Rations.

Unitized Group Ration-H&S (UGR-H&S)	
Purpose	<p>First group of rations made available to warfighters in theater.</p> <p>Used in combination with the MRE for daily feeding.</p> <p>Decreases inventory-carrying costs and simplifies ordering, distribution, and logistical processes while providing warfighters with top-quality, easy to prepare meals.</p>
Characteristics	<p>Does not require refrigeration.</p> <p>Pre-cooked and shelf stable for up to 18 months at 80 °F (27 °C).</p> <p>Polymeric tray container (primary shelf stable food component) contains pre-prepared and thermally processed or baked entrees, side dishes, and desserts, allowing a critical reduction in preparation time.</p> <p>Food is hermetically sealed within the trays and can be heated by simply submerging the tray in boiling water for 30 to 45 minutes.</p> <p>Consists of 3 breakfast and 14 lunch/dinner menus.</p> <p>One module is a self-contained menu, unitized into three fiberboard cartons that include food components, disposables (serving trays and utensils), and trash bags.</p> <p>A single module feeds 50 warfighters.</p> <p>One pallet contains 8 modules (400 meals).</p> <p>Average weight of module: 124.5 lbs (56.7 kg).</p> <p>Average cubic size of module: 5.25 cu ft (.15 m3).</p>
Nutritional Data (including mandatory supplements)	<p>Each meal provides an average of 1,450 calories:</p> <ul style="list-style-type: none"> -10 percent protein -35 percent fat -55 percent carbohydrates
Unitized Group Ration-B (UGR-B)	
Purpose	<p>Primarily used by the Marine Corps.</p> <p>Designed to meet requirements for providing Marines with high quality group rations that do not require refrigeration and are quick and easy to prepare.</p> <p>All ingredients are shelf stable, with an emphasis placed on including commercial products in all menus.</p> <p>Marine cooks utilize the ingredients to prepare a high quality, group serving meal that follows standard recipe.</p>
Characteristics	<p>Consists of 5 breakfast and 14 lunch/dinner menus.</p> <p>Incorporates a balance of dehydrates and commercial items.</p> <p>One module is unitized into three fiberboard cartons that contain shelf stable ingredients, disposable serving trays, utensils, and trash bags.</p> <p>Each module provides 50 meals.</p> <p>Each pallet contains 8 modules (400 meals).</p> <p>Modules are assembled at Government depots and have a shelf life of 18 months at 80 °F (27 °C).</p> <p>Average weight of module: 125 lbs (56.7 kg).</p> <p>Cubic size of module: 5.25 cu ft (.15 m3).</p>
Nutritional Data (including mandatory supplements)	<p>Each meal provides an average of 1,300 calories:</p> <ul style="list-style-type: none"> -15 percent protein -30 percent fat -55 percent carbohydrates
Unitized Group Ration-A (UGR-A)	
Purpose	<p>Designed to maximize the use of commercial items and to simplify the process of providing high quality food service in a field environment.</p> <p>Only military operational ration that contains frozen food components; therefore, it is based on a build-to-order assembly process that requires refrigerated/frozen storage and a field kitchen for preparation.</p>

Table 3-1. Specifications for Unitized Group Rations. (Cont'd)

<p>Characteristics</p>	<p>Contains semiperishable food items and perishable/frozen type entrees to provide an A-ration meal in the field. Configured into individual meal modules for ease of ordering, distribution, and preparation. Consists of 7 breakfast and 14 lunch/dinner menus. Contains all food items (with the exception of mandatory supplements [breads, milk, cold cereal] and optional enhancements [fresh fruit, vegetables, salad]) and disposable items (cups, compartment trays, napkins, utensils, trash bags) necessary to feed 50 individuals. In CONUS requires a 2 to 10 day order ship time and a 3 month remaining shelf life at 80 °F (27 °C). OCONUS requires a 45 to 75 day order ship time with a 9 month remaining shelf life at 80 °F (27 °C). One module serves 50 warfighters. One pallet contains 10 modules (500 meals). Average weight of module: 124.5 lbs (56.7 kg). Cubic size of module: 5.25 cu ft (.15 m3).</p>
<p>Nutritional Data (including mandatory supplements)</p>	<p>Each meal provides an average of 1,450 calories: –10 percent protein –35 percent fat –55 percent carbohydrates</p>
<p>Unitized Group Ration-Enhanced (UGR-E) <i>Note: All requests for UGR-Es must go through MCICOM G-4 for approval.</i></p>	
<p>Purpose</p>	<p>Designed to provide a complete, hot meal for up to 18 warfighters in remote locations where group field feeding would not otherwise be possible. A compact, self contained module that does not require cooks or a field kitchen for preparation. Food is heated in 30 to 45 minutes with a simple pull of a tab and is served in trays to warfighters like a cook-prepared meal.</p>
<p>Characteristics</p>	<p>Provides all of the items necessary for a complete meal to serve up to 18 warfighters, including group serving polymeric trays, drink pouches, snack/candies, compartmented dining trays, disposable eating and serving utensils, condiments, beverage bases, napkins, wet-naps, and a trash bag. "Kitchen in a carton" provides a protein-based entree, starch, vegetable, and dessert, all of which use polymeric tray containers. Uses a safe, exothermic chemical reaction similar to that of a flameless ration heater to heat food. (Heaters containing a magnesium-iron compound are sandwiched between the four polymeric trays. With the pull of a tab, a saline solution is distributed to the heaters and the reaction is initiated.) Optional enhancements like fresh fruits and UHT milk are also available. Consists of 4 breakfast menus, 8 lunch/dinner menus, and 1 holiday menu. Contains all food items and disposable items (cups, compartment trays, napkins, utensils, and trash bags) necessary to feed 18 individuals. Shelf stable for a minimum of 18 months at 80 °F (27 °C). One module serves 18 warfighters. One pallet contains three layers of six modules per layer (324 meals). Average weight of module: 43 lbs (20 kg). Cubic size of module: 1.9 cu ft (.05 m3).</p>
<p>Nutritional Data (including mandatory supplements)</p>	<p>Each menu provides an average of 1,300 calories: –12 percent protein –38 percent fat –50 percent carbohydrates</p>

Ultra-high Temperature Milk

Milk must be available with each unitized ration meal and 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 dinner. The UHT milk should be used before procuring fresh commercial items.

Individual Ration Heating Devices

The RSFH is the only flameless heater available to heat POR entree packets, dehydrated entrees in MCW, and water for instant soups and beverages. The RSFH is a water-activated, exothermic, chemical heating pad packaged with each MRE or MCW.

Health and Comfort Pack

The HQMC I&L Department; Logistics Plans, Policies, and Strategic Mobility Division; Logistics Capabilities Center; Supply Chain Capabilities Team (Code LPC-3) is responsible for policy guidance on the acquisition of health and comfort packs (HCP). 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. Health and comfort packs are delivered into theater until forward area exchange facilities are established. Health and comfort packs are not held in peacetime as part of WRM. To meet MAGTF deployment timelines, Marine Corps Logistics Command provides an initial 30-day requirement for HCPs to DLA Troop Support. Health and comfort pack requirements are calculated/registered during deliberate planning and are based on the initial 30 DOS to support the MAGTF. Table 3-2 shows types of HCPs.

Table 3-2. Types of Health and Comfort Packs.

Type	Size	Contents
I	58 lbs, 2.91 cu ft	Toothbrush Toothpaste Dental floss Razors Shaving cream Soap (bar) Foot powder Tissues Shampoo Deodorant stick Lip balm Body wipes Plastic bags Sunscreen lotion Toilet paper Eye drops Supplemental Items: Laundry detergent Sewing kit Band-aids
II (female)	18 lbs, 1.86 cu ft	Sanitary napkins Tampons Panty shields Plastic bags Ponytail holders Hairbrush Comb Bobby pins Personal hygiene body wipes
III (male & female)	25 lbs, 1.86 cu ft	Personal hygiene body wipes

Host Nation Feeding

One of the first OCONUS planning factors to consider is host nation feeding. Host nation feeding consists of four categories: food service HNS, HNM, contract feeding, and field support. When feasible, MAGTF plans should make maximum use of HNS available within the theater of operations. Host-nation support can augment MAGTF elements' organic food service capabilities; however, HNM and contract feeding is not a substitute for essential MAGTF organic capabilities but 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). Subsistence provided by a host nation must be inspected by US Army veterinary personnel.

Host Nation Messing

Host nation messing consists of bulk food purchased for US military organizations (as opposed to individual Service members), with the host nation or contractor providing the food and its preparation. Host nation messing involves Marine Corps personnel subsisting in a host nation facility in which the Marine Corps will reimburse the host nation for the meals provided. Host nation messing 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 contracted logistics support agreements. Contract feeding is any feeding—where individual meals are provided—that is prepared by a contractor (CONUS/OCONUS) or host nation government outside the Service's mess hall. This method of feeding Marines should be used in accordance with the guidelines specified in MCO 10110.14M and only after all efforts to obtain subsistence support from other military/host nation sources have been exhausted. A 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 (e.g., labor, equipment, materials) must be paid for with unit O&MMC funds. The subsisting unit collects all accounting data pertaining to the subsistence operation before departing the area of operations.

Military Personnel, Marine Corps Subsistence In Kind Funds

The MPMC subsistence in kind (SIK) funds are used to procure bulk subsistence items from direct support stock control (prime vendor) or other contracted commercial sources. Bottled water and ice are not considered food items for purchase and must be procured using O&MMC 1106 funds.

When contract feeding/HNS is provided, MPMC SIK funds may be used to pay for raw subsistence items. Under these conditions, the SIK account will only reimburse contract or host nation costs at the discounted meal rates for the breakfast and dinner meals. Units are required to use MREs for

the lunch meal under all field conditions. Contract feeding or host nation contract costs above the discounted meal rates must be paid with unit/exercise O&MMC 1106 funds (e.g., contract labor, overhead, profit).

Operations and Maintenance Marine Corps Funds

Operations and maintenance Marine Corps funds are used to support base operational expenses and training costs (this includes consumable supplies, cleaning gear, fuel, repair parts, etc.). Additionally, O&MMC funds are used for contract or host nation costs above that allocated from the MPMC account.

Field Support

This method of feeding occurs 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.

Acquisition and Cross-Servicing Agreements

Occasionally, United States forces will conduct multinational training exercises with foreign military forces. United States Code, Title 10, *Armed Forces*, subtitle A, part IV, chap. 138, subchapter 1, sec. 2341-2350, *Acquisition and Cross-Servicing Agreements*, authorizes DOD to enter into mutual logistic support agreements with the defense departments of foreign nations. When conducting a multinational exercise, the officer scheduling and conducting the exercise should determine the appropriate reimbursements for messing support for each participant based on existing acquisition and cross-servicing agreements. If in doubt, the unit comptroller will have information on all existing agreements and should be the point of contact to determine if an acquisition and cross-servicing agreement is in place.

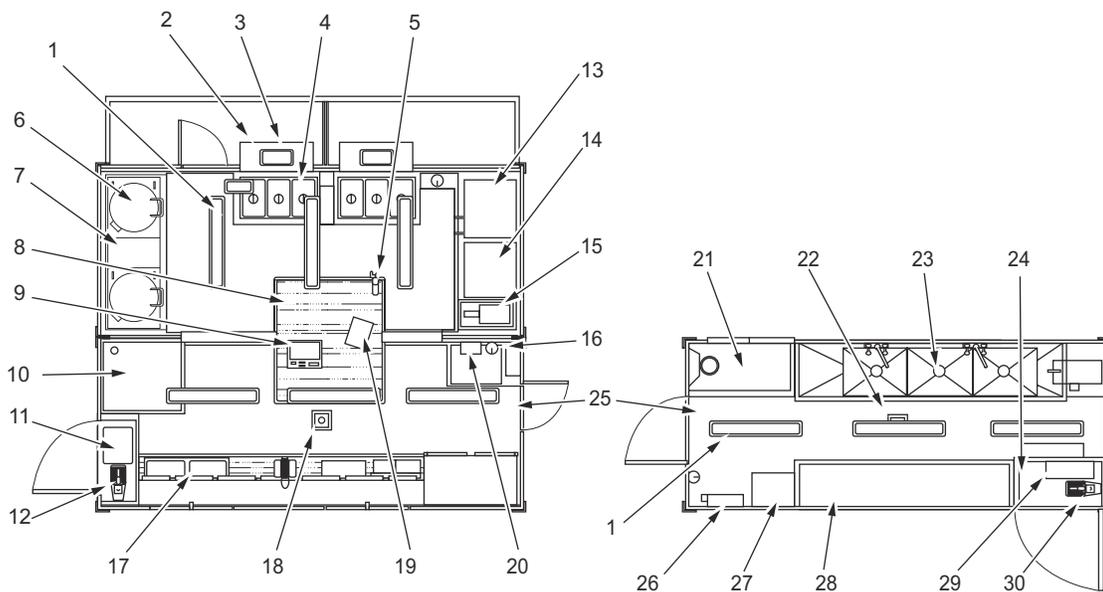
CHAPTER 4 EQUIPMENT

Field Food Service System

TAMCN C5810
NSN 7360-33-201-2934

The FFSS is configured within three 8 ft x 8 ft x 20 ft shelters (see fig. 4-1) that meet ISO container dimensions. The 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 MPSRONS. The FFSS is a combination of the Marine rapid deployment kitchen, which is configured within two shelters and the field sanitation unit (FSU), that is configured within one shelter. The FFSS is capable of preparing 850 meals during a 4-hour period (this does not include setup 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.



Legend:

- | | | |
|-------------------------------|-------------------------|-------------------------------|
| 1 - lights | 11 - water heater | 21 - scraping area |
| 2 - service counters | 12 - water pump | 22 - floor drain |
| 3 - red light stainless steel | 13 - skillet | 23 - sinks |
| 4 - hot serving line | 14 - skillet | 24 - service locker |
| 5 - can opener | 15 - fry kettle | 25 - doorway |
| 6 - steam jacket kettle | 16 - fire extinguishers | 26 - electronic control panel |
| 7 - small grill | 17 - double sinks | 27 - personal lockers |
| 8 - center table | 18 - floor drain | 28 - storage shelves |
| 9 - scale | 19 - cutting boards | 29 - heating boiler |
| 10 - combination oven | 20 - first aid kit | 30 - water pump |

Figure 4-1. Field Food Service System.

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

Operational Characteristics

The FFSS supports designated elements of the MAGTF with two hot meals daily. It is nearing the end of its service life and is being replaced by the EFK. 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 setup and operating range for the FFSS is from -24 °F to 125 °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; the total weight per FFSS is 29,760 pounds. The weight of each shelter for all other systems is approximately 14,000 pounds; the 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 3 phases, 120/208 volt, 50/60 Hz, alternating current, capable of North Atlantic Treaty Organization (NATO) conversion. The FFSS is powered by two 100 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 bus duct has been fielded separately from the FFSS. The bus duct will enable the system to be powered by either of the 100 kW generators, and refrigeration units can be used with the addition of a third 100 kW generator. Additionally, the bus duct enables the system to be powered by three 60 kW generators. Electric requirements for the FFSS are as follows:

- Marine rapid deployment kitchen (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

Operator maintenance includes proper care, use, operation, cleaning, inspecting, preserving, lubricating, adjusting, and testing and the replacing of parts, minor assemblies, and subassemblies as prescribed in the TM 10879A-12. Contracted logistics support has expired. Maintenance cost above the crew/operator level is to be paid for by the using unit.

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

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-in. (127-cm) 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 Military Standard (MIL-STD)-1366E, *Interface Standard for Transportability Criteria*.

Aircraft Transportability

The FFSS meets the minimum requirements of Military Handbook (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, series 20 through 43, are Marine transportable per MIL-STD-1366E and withstand

(without damage) the shock, rolling (not to exceed 15 degrees), and pitching (not to exceed 10 degrees) 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 apparatuses designed to accommodate the weight and dimensions of the configured system.

Expeditionary Field Kitchen

TAMCN C0034

NSN 7360-01-579-1956

The EFK (see fig. 4-2 on page 4-4) is a self contained mobile feeding platform. The EFK is an ISO container in mobile expandable container configuration mounted on the MCC20 trailer (see figs. 4-3 and 4-4 on page 4-5). The system is composed of two tilt skillets, two ovens, two TRHSs, and a 3-sink field sanitation unit.

The components all use the Airtronic™ burner as their heat source. It also includes two, reach-in style refrigerators. The two TRHSs, one fixed oven, one mobile oven, handwashing sink, and the field sanitation unit are mounted on casters to allow the components to be moved into place on the wing walls of the EFK. All other components are mounted to the floor.

Operational Characteristics

The EFK is used to support designated elements of the MAGTF with 500 hot meals twice a day. The commander can use the EFK in expeditionary operations to provide meals that enhance unit morale, performance, and health while meeting nutritional standards identified by the US Navy

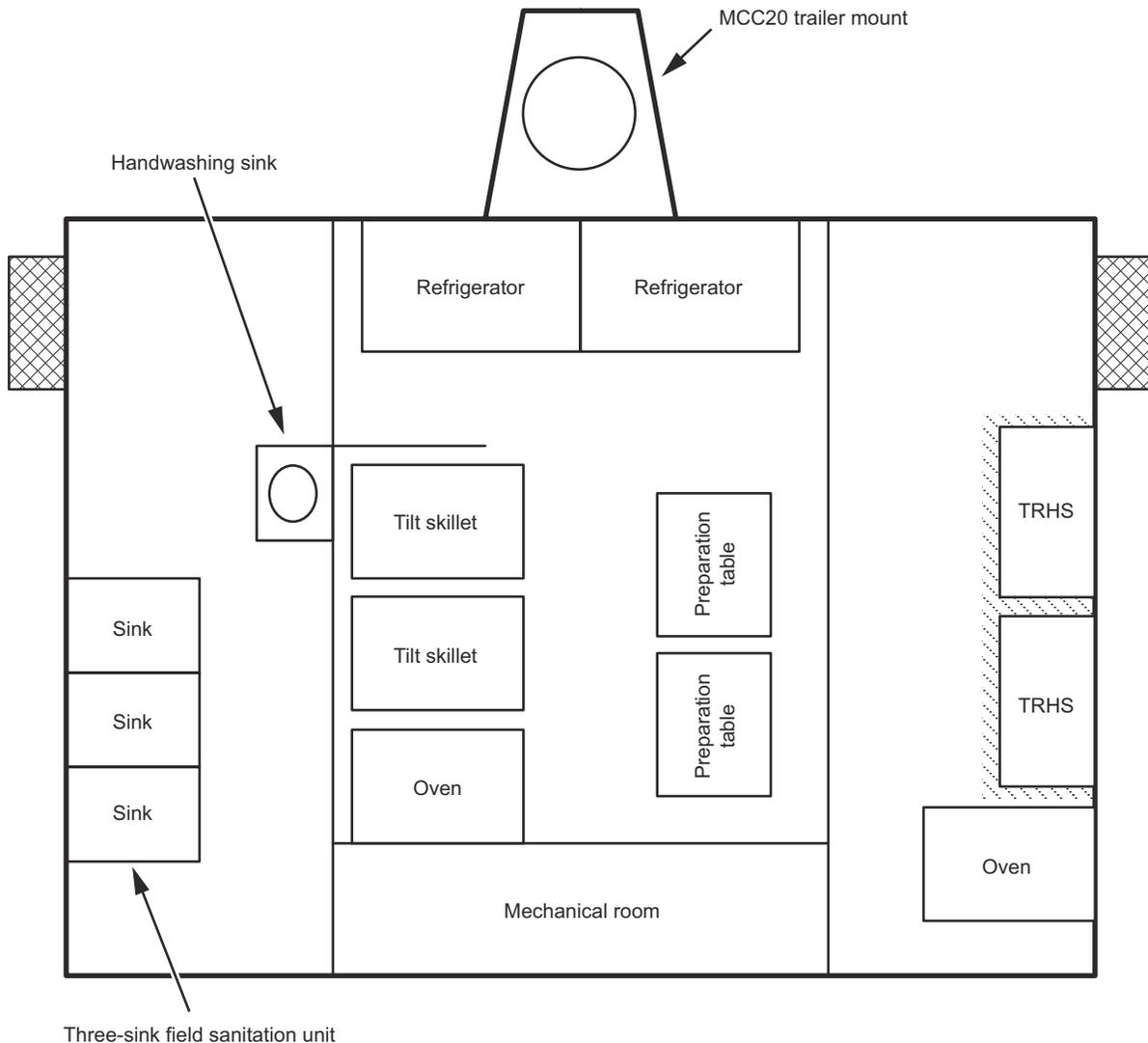


Figure 4-2. Expeditionary Field Kitchen.

Bureau of Medicine and Surgery. Meals may be served from the EFK at the preparation site or placed in insulated food containers for remote feeding. The setup and operating range for the EFK is from -24 °F to 125 °F and the storage range is from -25 °F to 160 °F.

Physical Characteristics

The EFK is comprised of one ISO container, 8 ft x 8 ft x 20 ft, mounted on the MCC20 trailer. The weight of each system is 23,000 pounds. This weight includes the trailer, container, and

container contents. The EFK's physical specifications are as follows:

Trailer overall dimensions

- Length: 28 ft 3 in.
- Width: 97 in.
- Container lock height: 47 in.
- Total height with containerized shelter: 143 in.
- Height (without containerized shelter): 47 in.

Ground clearance

- Frame rail: 28 $\frac{3}{4}$ in.
- Axle: 11 $\frac{3}{4}$ in.

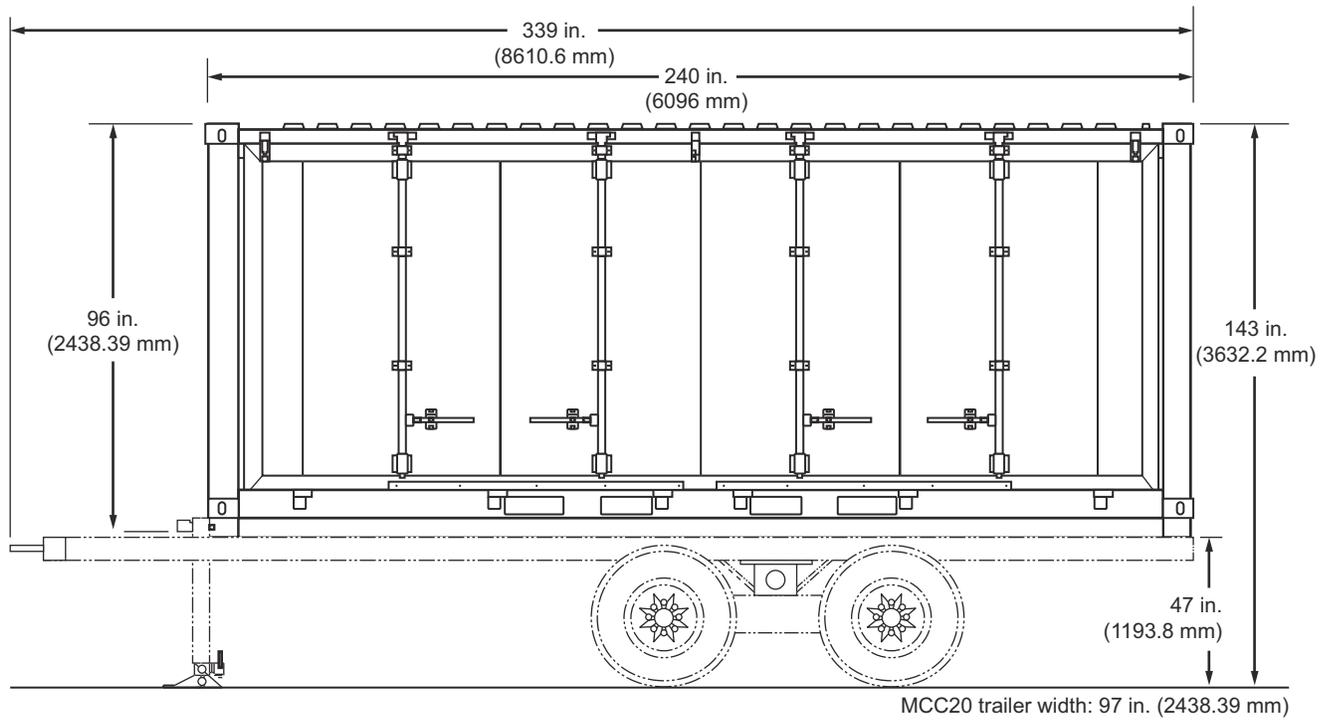


Figure 4-3. Trailer-Mounted Expeditionary Field Kitchen.

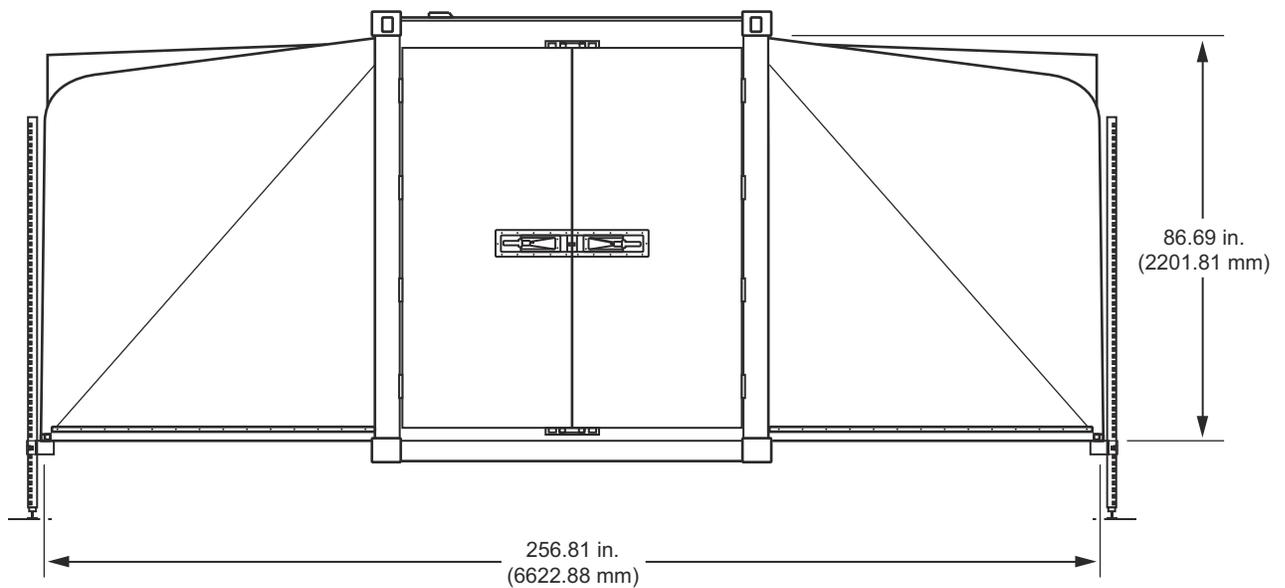


Figure 4-4. Expeditionary Field Kitchen with Sides Expanded.

Weights

- Curb (no load): 8,380 lbs.
- Maximum cargo: 20,000 lbs.
- Gross (loaded): 28,380 lbs.

Note: Listed maximum loads obtainable only with approved center of gravity approved shelter or flat rack systems.

Power Requirements

The EFK requires an external generator or electrical power source to provide electrical power for all operations. The current power requirements are 6 kW for the EFK. The EFK utilizes three-phase, 208 volt, 50/60 Hz, alternating current, capable of NATO conversion. The EFK is powered by a 10 kW, 60 Hz power supply or generator typically employed for operational scenarios, as well as conventional commercial power sources. The EFK generator (TAMCN B0891, NSN 6115-01-275-5061) was purchased for the engineer community, and it is an associated TAMCN that deploys with the EFK.

Maintenance

There are two levels of maintenance for the EFK: operator/crew and field. Operator/crew maintenance includes proper care, use, operation, cleaning, inspecting, preserving, lubricating, adjusting, and testing, and the replacing of parts, minor assemblies, and subassemblies as prescribed by supply maintenance recoverability (SMR) codes. Any repair of the system that exceeds the operator level of maintenance based off SMR codes will be done at the field level.

Other Support Equipment

Employment of the EFK requires transportation via the medium tactical vehicle replacement (MTVR), water capability for 500 personnel per meal, refrigeration units, general purpose tents, and gray water disposal containers.

Storage

The container of the EFK is ISO certified and can be stacked nine high when removed from the trailer.

Transportation

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

Transportability and Naval Integration

When configured for transportation, the EFK 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 EFK 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-in. (127-cm) high rail car, the EFK has a dimensional profile within the Association of American Railroads outline diagram and the Gabarit International de Chargement as specified in MIL-STD-1366E.

Aircraft Transportability

The EFK meets the minimum requirements of MIL-HDBK-1791 for C-17, C-141, and C-5 air transport. Although, the manufacturer certifies that the EFK meets air transportability requirements for NAVAIR C-130 and external helicopter lift, the user should contact the project manager, Combat Support Equipment, Combat Support Systems, Marine Corps System Command for updated information.

Marine Transportability

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

Ground Transportability

The Marine Corps' MTRV is the prime mover of this system. The EFK mounted on its MCC20 trailer and towed by the MTRV is transportable over primary and secondary roads, as well as cross-country terrain.

Tray Ration Heating System

TAMCN C6621
NSN 7310-01-295-7479

The TRHS (see fig. 4-5) is comprised of a tray ration heater and associated collateral and sup-

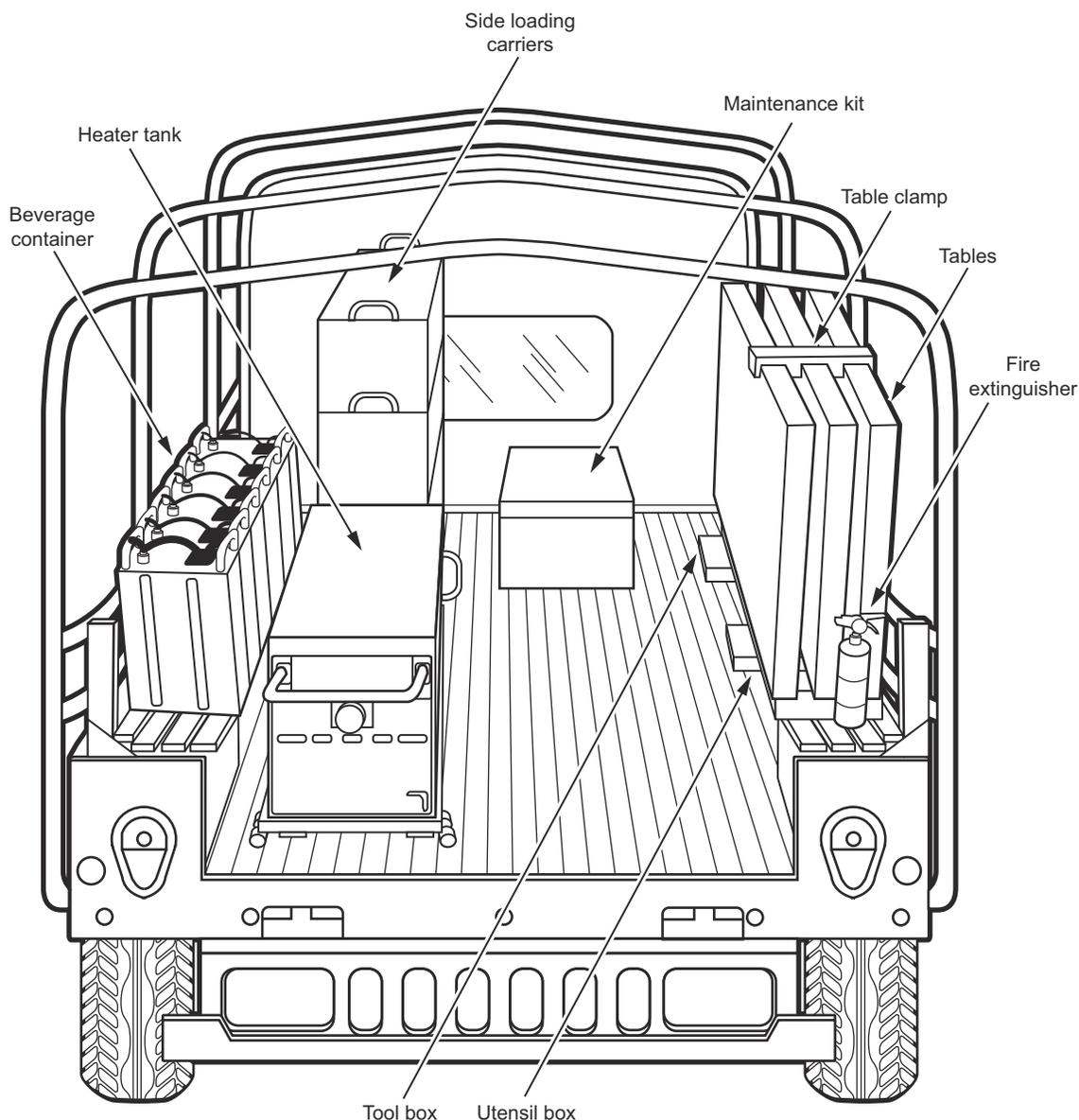


Figure 4-5. Installed Tray Ration Heating System, Tailgate View.

port equipment that compose a component of the MCFFP. When installed on a high mobility multipurpose wheeled vehicle (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 PORs to the operational field mess. The TRHS consists of a stainless steel hot water tank and a multifuel, 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 volts, alternating current (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 MHE. Easily installed, ratchet-operated tie down straps secure the tray ration heater 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. The system can also be operated in a static environment (see fig. 4-6). The equipment can be taken off the vehicle and placed in a shelter or by using

the fly tent included with the TRHS. The TRHS will need an electrical connection of 110 volts, single phase outlet from shore power, a generator, or a vehicle with NATO slave plug capability pulled in close to the TRHS.

TM 09211A-14&P, *Operation and Maintenance Manual for the Tray Ration Heating System*, provides detailed information on the operation, maintenance, and safety procedures for the TRHS.

Enhanced-Tray Ration Heating System

TAMCN C00357B
NSN 4520-01-564-3917

The E-TRHS (see fig. 4-7) is comprised of the TRHS, the small field refrigeration system (SFRS) with shelving and tie down equipment, two M-59 field ranges, two powered multifuel burner (PMB) sleds, and a collateral material kit. All the items fit within the SFRS for transport. A detailed pack-out of the equipment is included in TM 09211A-14&P/Supplement 1, *Operation Manual and Component List for the Enhanced Tray Ration Heating System (ETRHS); Supplement to Tray Ration Heating System (TRHS)*, for the E-TRHS. The SFRS is an associated TAMCN, TAMCN B0075, that deploys with the E-TRHS.

Operational Characteristics

The E-TRHS will be used to support designated elements of the MAGTF with 350 hot meals twice a day. The commander can use the E-TRHS 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 E-TRHS at the preparation site or placed in insulated food containers for remote feeding. The addition of the refrigerated container allows for the use of the full family of combat rations.

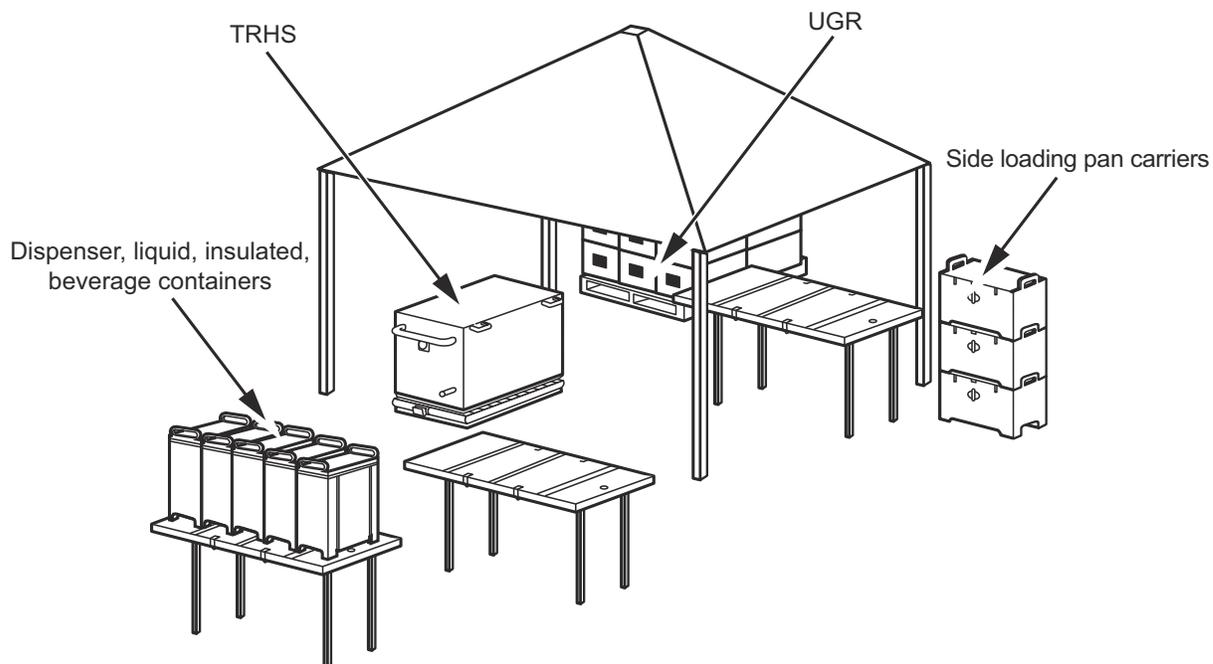


Figure 4-6. Tray Ration Heating System in Static Environment.

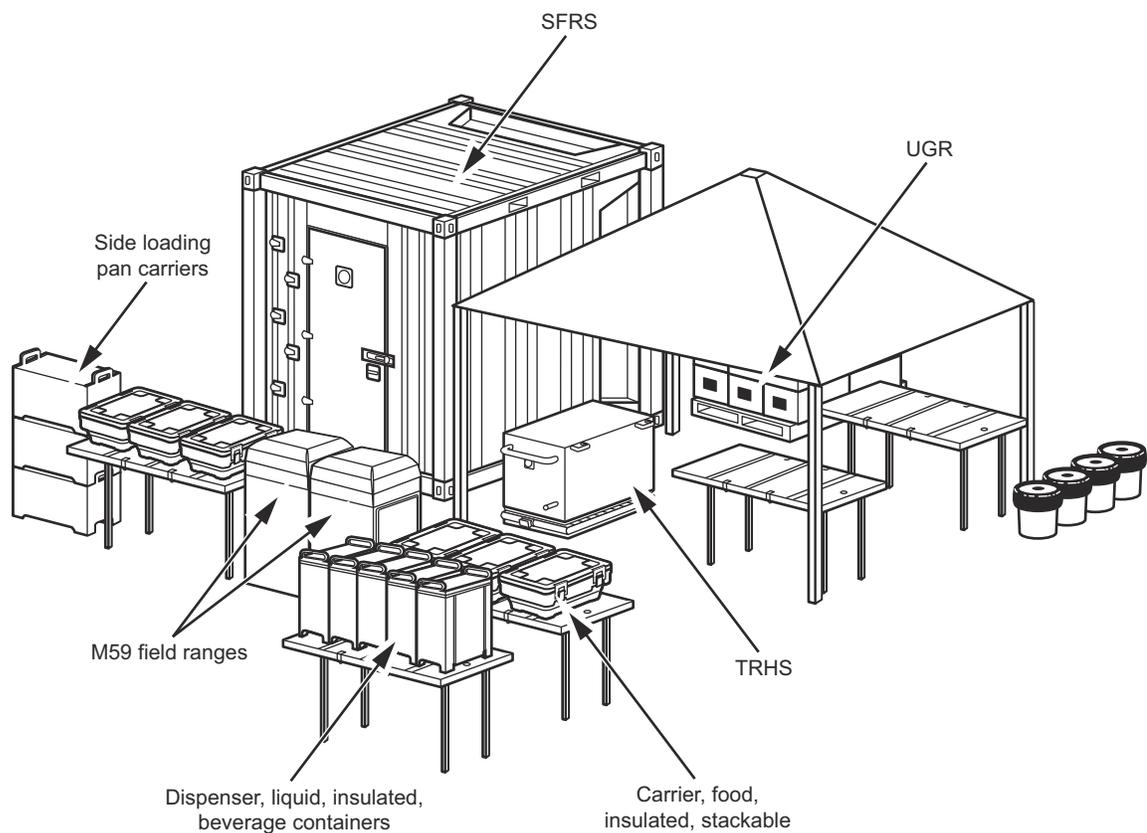


Figure 4-7. Enhanced-Tray Ration Heating System.

Physical Characteristics

The E-TRHS is comprised of one ISO certified refrigerated container, 8 ft x 8 ft x 6.5 ft.

Power Requirements

The E-TRHS requires an external generator or electrical power source to provide electrical power for all operations. The current power requirements are 5 kW for the E-TRHS. The E-TRHS utilizes 3-phase, 208 volt, 50/60 Hz, alternating current, which is capable of NATO conversion. The E-TRHS is powered by a 10 kW, 60 Hz power supply or generator typically employed for operational scenarios, as well as conventional commercial power sources. The generator (TAMCN B0891, NSN 6115-01-275-5061) for the E-TRHS was purchased by the family of combat rations for the engineer community and is an associated TAMCN that deploys with the E-TRHS.

Maintenance

There are two levels of maintenance: operator/crew and field. Operator/crew maintenance includes proper care, use, operation, cleaning, inspecting, preserving, lubricating, adjusting, and testing, and the replacing of parts, minor assemblies, and subassemblies as prescribed by SMR codes. Any repair of the system E-TRHS that exceeds the operator level of maintenance based off SMR codes will be done at the field level.

Field Mess Equipment

Field Range Outfit, Gasoline

NSN 7360-00-082-2153

The M59 field range outfit (see fig. 4-8) 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 (NSN 7310-01-535-6997) is authorized for every two ranges (see fig. 4-9 on page 4-12).

The M59 field range can be used to bake, roast, boil, grill, and deep-fat fry foods. The range may also be used as a hot line or steam table.

Airtronic™ Burner Unit with Powered Multifuel Burner Sled

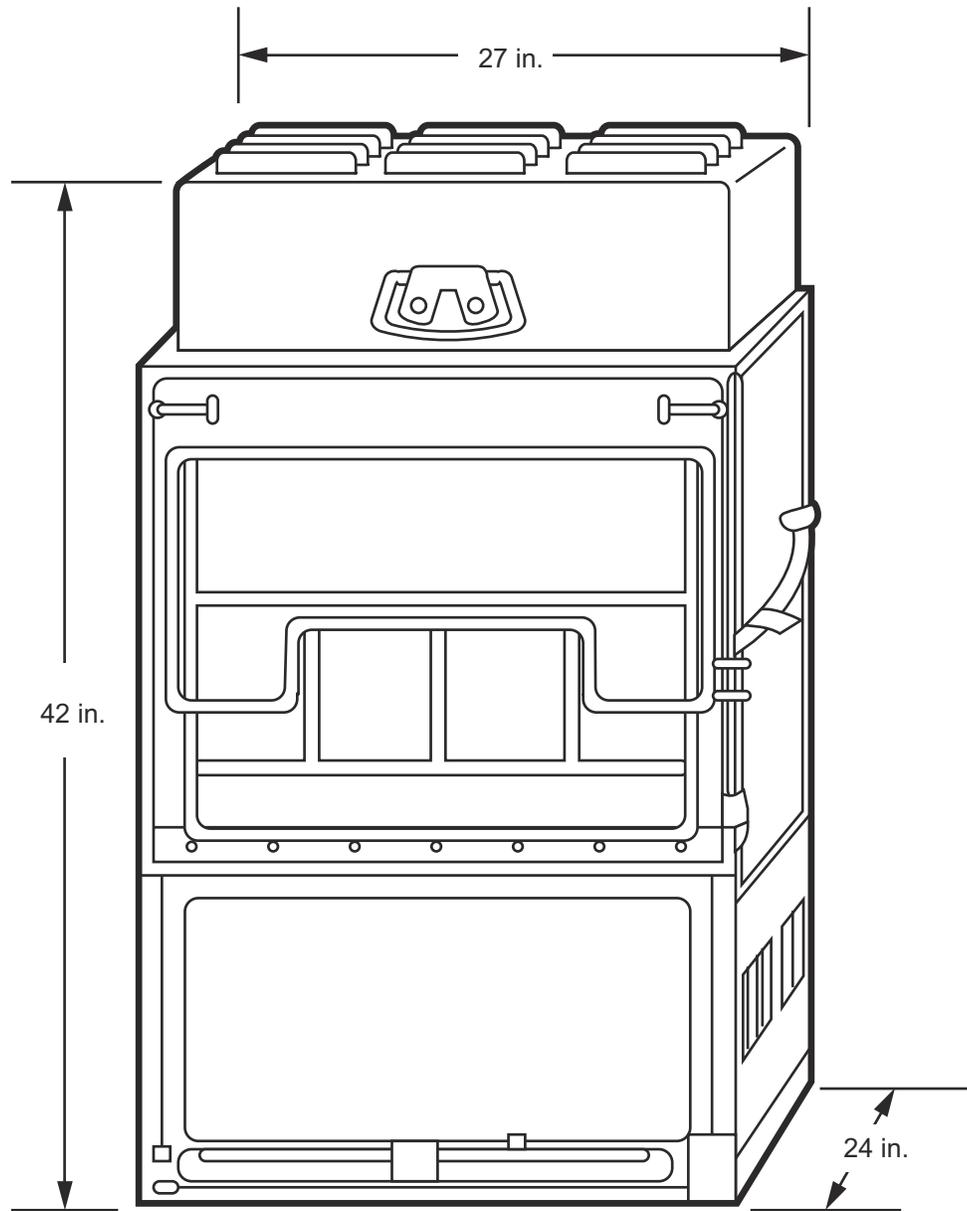
NSN 7310-01-442-8340

NSN 7310-01-535-6986

The Airtronic™ burner (NSN 7310-01-442-8340) (see fig. 4-10 on page 4-13) is the heat source for the M59 field range, E-TRHS, TRHS, and the EFK. The burner is inserted into the PMB sled (NSN 7310-01-535-6986) (see fig. 4-11 on page 4-13). The sled is then placed only in the bottom of the M59 field range. The mess chief must ensure that the cooks operate the PMB sled (with burner installed) safely and in a manner that protects the environment.

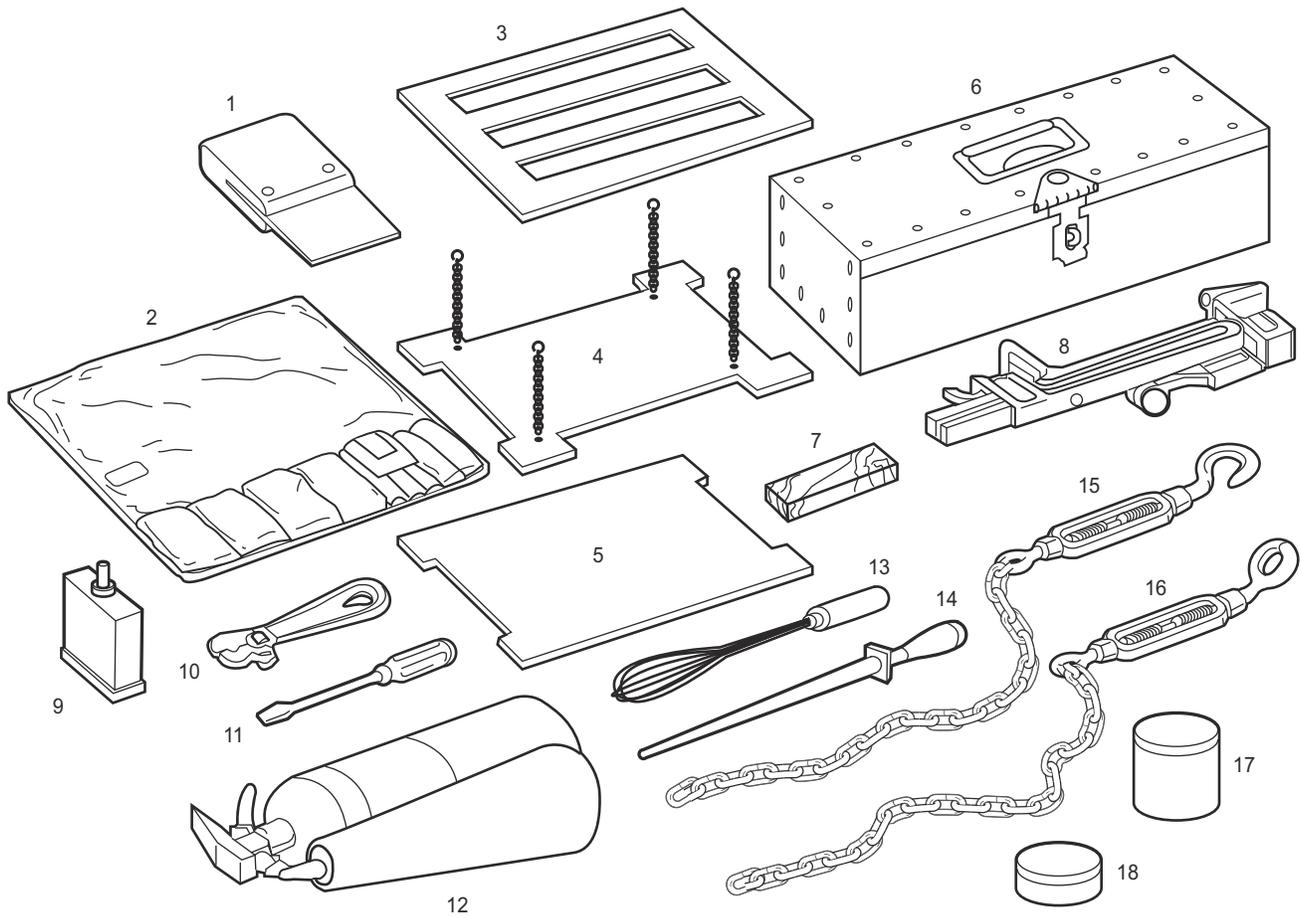
Maintenance

There are only operator/crew maintenance tasks. Operator/crew maintenance includes proper care, use, operation, cleaning, inspecting, preserving, lubricating, adjusting, and testing and the replacing of parts, minor assemblies, and subassemblies as prescribed by SMR codes. Any repair of the system that exceeds the operator/crew level of maintenance will require the burner to be turned into the repairable issue point for exchange of a working burner.



Weight 114 lbs. (w/o heat source)

Figure 4-8. M59 Field Range Outfit.



Legend:

1 - scraper
2 - roll
3 - baking rack set (tray 1)
4 - baking rack set (tray 2)
5 - baking rack set (tray 3)
6 - chest

7 - stone
8 - opener
9 - lubrication oil
10 - wrench
11 - screwdriver (flat)
12 - fire extinguisher

13 - eggwhip
14 - butcher steel
15 - chain (hook end)
16 - chain (loop end)
17 - antiseize compound
18 - can

Figure 4-9. M59 Field Range Accessory Kit.

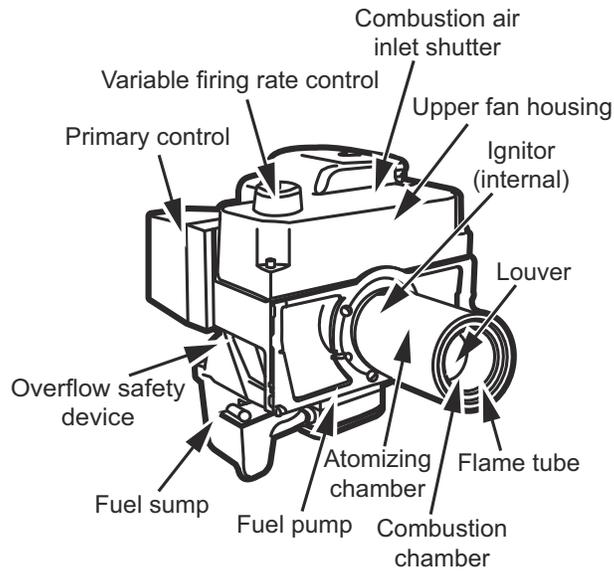


Figure 4-10. Airtronic™ Burner.

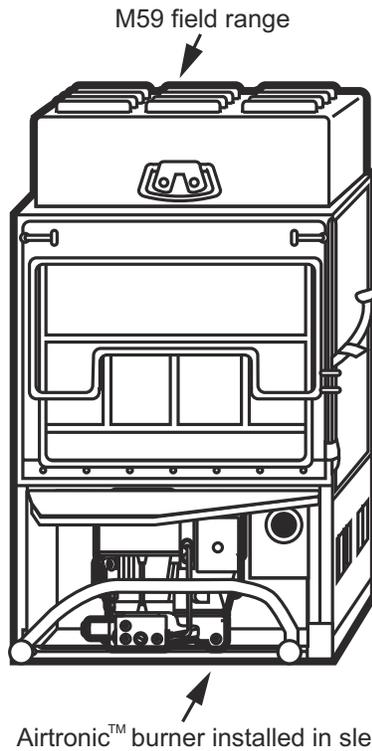


Figure 4-11. Airtronic™ Burner, Sled Installed.

Fire Prevention and Environmental Protection

Ensure that all personnel follow fire prevention and environmental protection rules when operating the PMB sled and burner.

WARNING

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

Insulated Food Carrier, Stackable

TAMCN C4880
NSN 7360-01-576-1586

Insulated food containers (see fig. 4-12) are used to keep foods hot or cold. These containers will maintain the temperature of food for a 4-hour period. Food containers will hold 5 gallons of liquid.

Preheating Instructions

Perform the following procedures to preheat food:

- Pour 2 quarts of hot water into the container.
- Close the container lid and secure the latches.

- Let stand for at least 15 minutes.
- 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 Instructions

Before cold food is placed in the container, perform the following procedures:

- Put crushed ice or 2 quarts of ice water in the container.
- Close the container lid and secure the latches.
- Let stand for 30 minutes.

After the crushed ice or ice water has been inside the container for 30 minutes, perform the following procedures:

- 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.

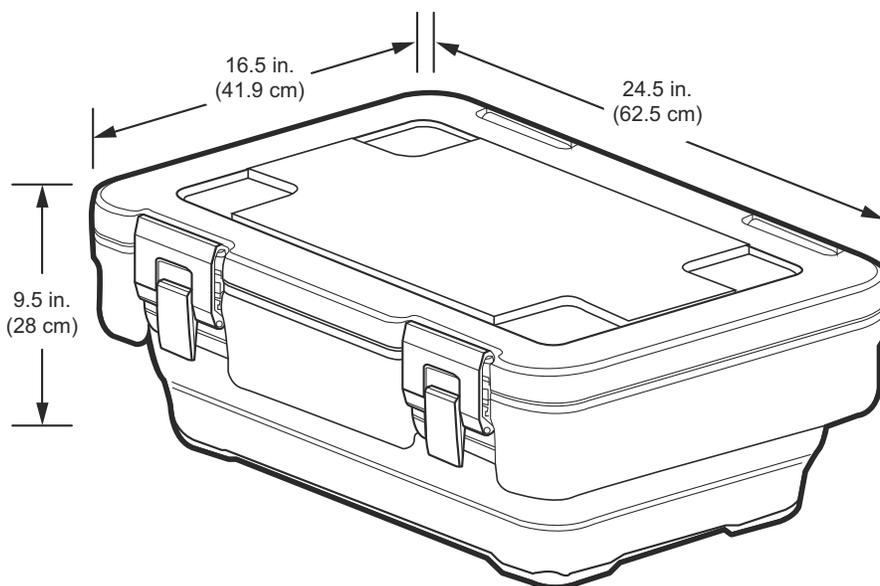


Figure 4-12. Insulated Food Carrier, Stackable.

Labeling Containers

When filled, each food container is required to be 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 the food is to be consumed by, which is 4 hours after the container was filled).

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, dishwashing compound solution and the parts are rinsed and sanitized in water that is at least 170 °F to 180 °F. After washing the gaskets from the food container, allow them to air dry before reinserting them in the container.

Insulated Beverage Dispenser, Liquid

TAMCN C4546
NSN 7330-01-093-7371

The 5-gallon beverage container (see fig. 4-13 on page 4-16) is a SL-3 component of the TRHS and is to be used for all other liquid dispensing requirements. The container will be cleaned in accordance with the guidelines for the food containers set forth in TM 09211A-14&P/Supplement 1.

Skid-Mounted, Tactical Quiet Generator Set (100 kW)

TAMCN B1045
NSN 6115-01-296-1463

The model mobile electric power (MEP)-807A skid-mounted generator set is a self-contained source of alternating current electrical power. A 100 kW synchronous, brushless generator is directly driven by a turbocharged, 6-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 1142 (engineer equipment electrical systems technician) is required to set up, start and maintain the 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. Detailed information on the operation, maintenance, and safety procedures for the MEP-807A are provided in TM 07464C-10/1, *Operators Manual for Generator Set, Skid Mounted, Tactical Quiet*.

Skid-Mounted, Tactical Quiet Generator Set (60 kW)

TAMCN B1021
NSN 6115-00-462-0291

The MEP-806B is a fully enclosed, self-contained, skid-mounted, tactical quiet 60 kW 50/60 Hz portable generator 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 1142 to set up, start, and maintain the 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. Detailed information on the operation, maintenance, and safety procedures for the MEP-806B are provided in TM 09244B/09245B-14/1, *Operator, Unit, Direct Support and General Support Maintenance Manual, Generator Set, Skid Mounted, Tactical Quiet*.

Refrigerated Field Container

TAMCN B1710

NSN 4110-01-107-9078

The refrigerated field container is an insulated container without a refrigeration unit (see fig. 4-14). The overall refrigerated field container assembly is a one-piece, welded steel frame with permanently

assembled, riveted aluminum alloy panels. It contains the following:

- Sixteen 18 in. x 42 in. wire shelves. Two sets of four shelves are arranged against the right interior wall and two sets are arranged against the left.
- Four tiedown rings mounted on the interior left and right walls to aid in securing items.

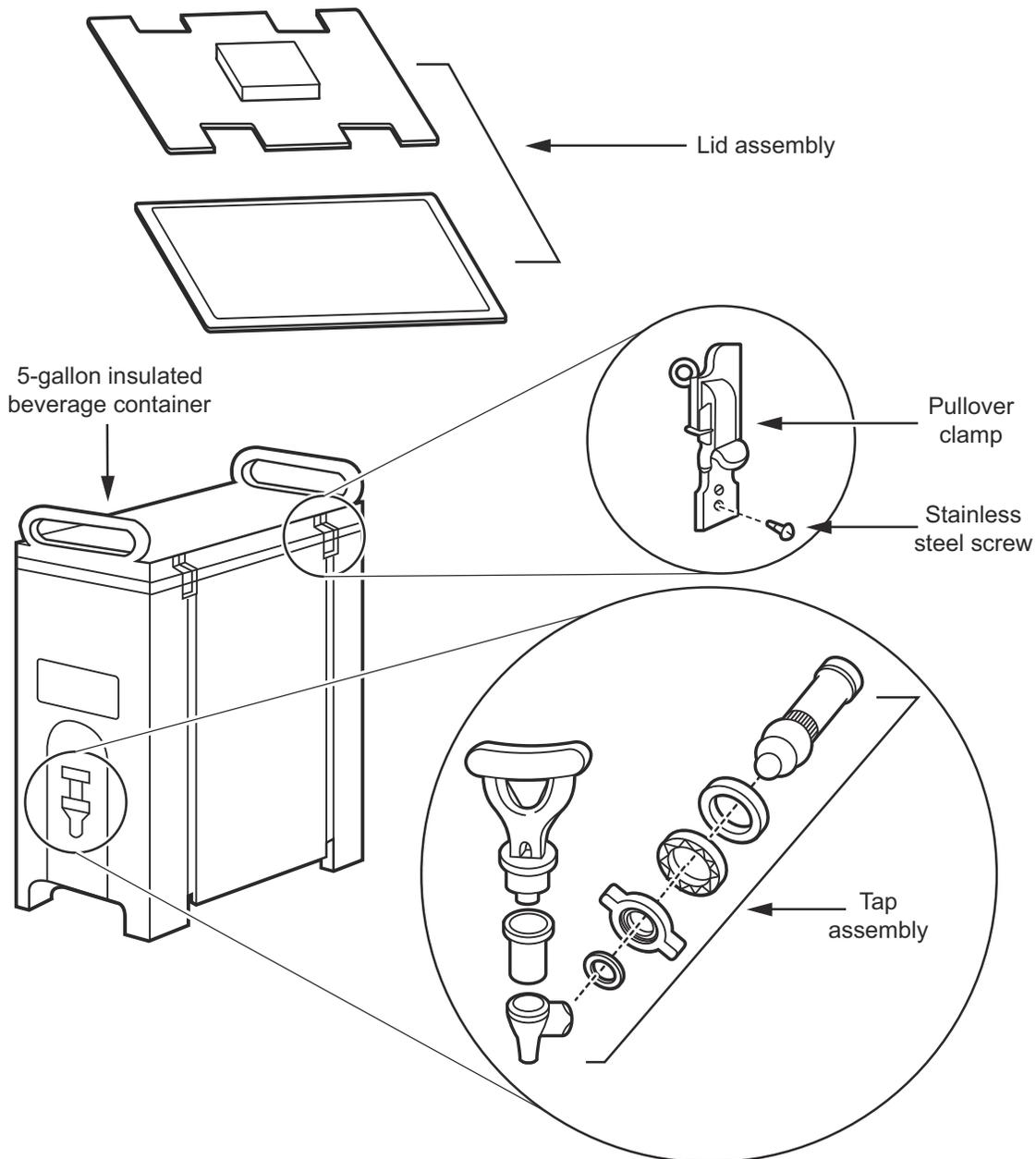


Figure 4-13. Insulated Beverage Container (5-gallon).

- Two drains in the floor of the container.
- A thermometer mounted on the exterior front panel near the left side of the door assembly.
- A light bulb switch 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 Hz, 3-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. Detailed information on the operation, maintenance, and safety procedures for the refrigerated field container are provided in TM 08407A-13/1, *Refrigerated Container, Field, 8' x 8' x 10'*.

Enhanced Refrigeration Unit

TAMCN B1645

NSN 4110-01-468-9792

The ERU (model VM405 Max EL) must be operated by MOS 1161 (refrigeration and air conditioning technician) personnel. Food service personnel will ensure that the temperatures are monitored and recorded in accordance with the Naval Medical Publication NAVMED P-5010-1, *Manual of Naval Preventive Medicine*. Detailed information on the operation, maintenance, and safety procedures for the ERU is provided in TM 10673A-12/2, *Enhanced Refrigeration Unit*

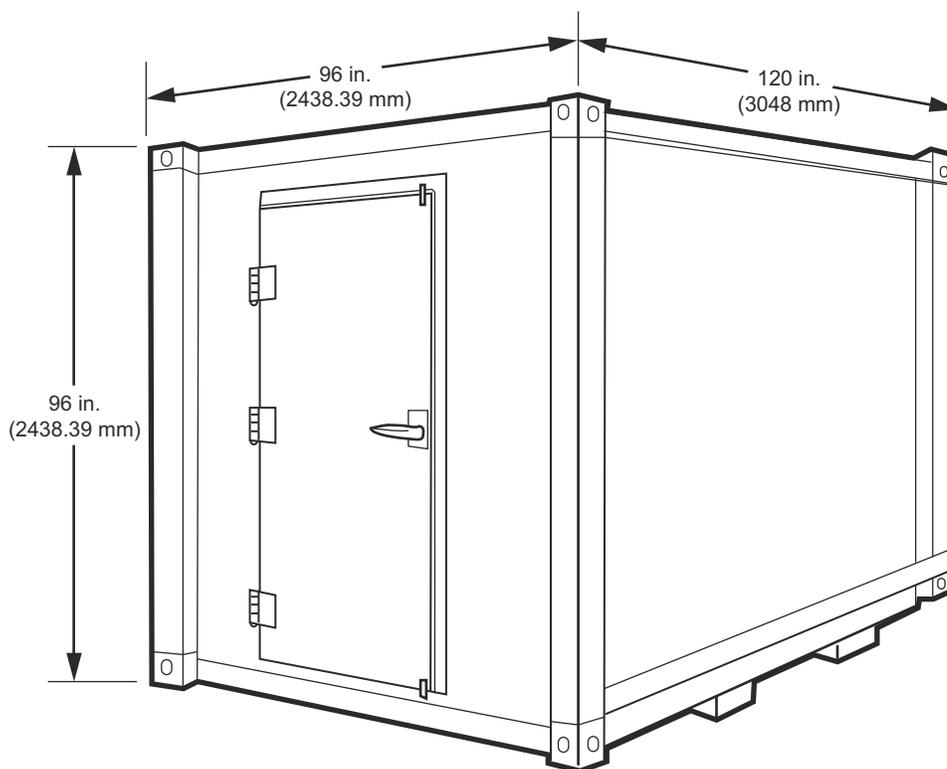


Figure 4-14. Refrigerated Field Container.

4,500 BTU/HR, 208/230 Volt, 50/60 Hertz, Model VM405 Max EL. Characteristics, capabilities, and features are as follows:

- Contains 4,500 BTUs.
- Provides refrigerated or heated air for an enclosed space.
- Maintains temperature of enclosure at any setting between 0 °F and 40 °F, in ambient of -65 °F to 125 °F.
- Is capable of being mounted in any 8 ft x 8 ft x 10 ft field container.
- Weighs 474 pounds.
- Is easily installed with the use of a forklift.
- Has lifting slots that allow for the use of a forklift during installation of the refrigeration box.
- Operates on tactical or commercial power (electric, motor-driven, and requires a 208/230 volts, 3-phase 60 Hz or 200 volts, 2-phase 50 Hz).
- Uses R-404A as its refrigerant.

- Is equipped with an automatic defrost cycle to prevent excessive buildup of frost and ice on the evaporator coil.
- Is a one piece condenser/evaporator refrigeration unit.

Small Field Refrigeration System

TAMCN B0075

NSN 4130-01-156-7655

The SFRS brings together the transportation benefits of the triple container (TRICON; sometimes also identified as Tricons or TriCons) and the refrigeration capabilities of traditional refrigeration units that normally require their own transportation to field feeding sites. The SFRS (see fig. 4-15) is known commercially as the TRICON. One SFRS unit is structurally compatible to be mixed and matched

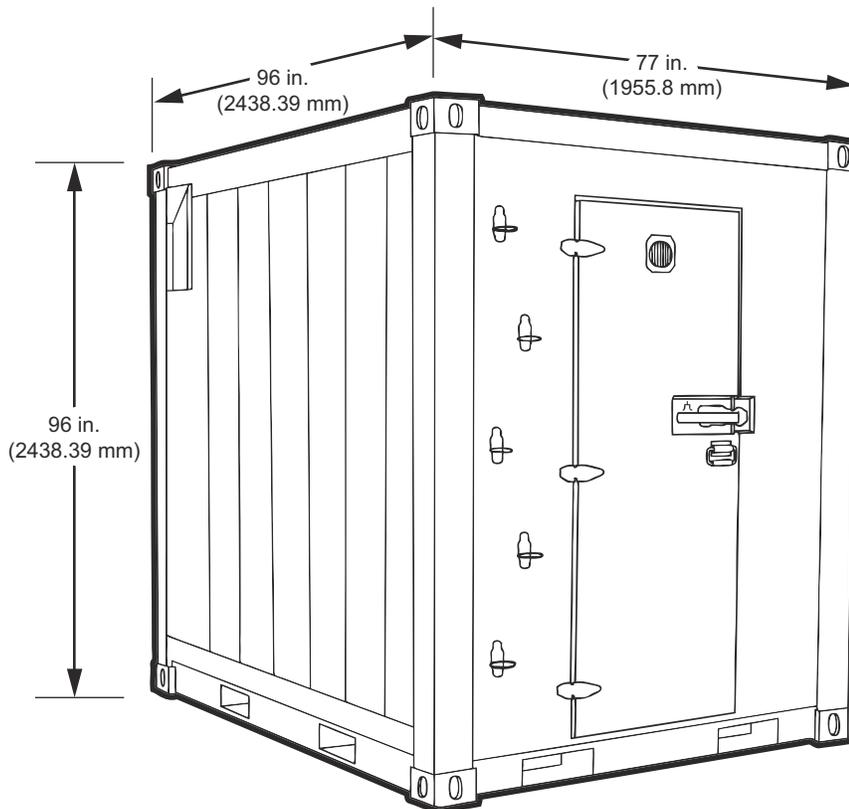


Figure 4-15. Small Field Refrigeration System.

with other SFRS units to form units that are equivalent to ISO 20-foot containers using the supplied connecting couplers. Detailed information on the operation, maintenance, and safety procedures for the SFRS is provided in TM 11609A-OI, *Operator/Crew and Field Level Maintenance Manual for Small Field Refrigeration System*. Characteristics, capabilities, and features are as follows:

- Four-way fork-lift pockets.
- 3 connecting couplers per TRICON.
- Internal lighting, dual voltage source, 115/230 VAC.
- Air curtains in sliding track across door.
- 31-day recording thermostat.
- 208/230 VAC, 3-phase, 60 Hz.
- Transportable by USMC MTVR or logistics vehicle system.
- Easily converts from refrigerated storage for rations with temperatures from 33 °F to 40 °F to frozen rations at temperatures from -5 °F to 32 °F in ambient environments up to 122 °F.
- Weight: 3,520 lbs.

The SFRS will also be fielded as part of the E-TRHS for transportation of the E-TRHS and its components, which will be used to set up a field kitchen.

Large Field Refrigeration System

TAMCN B0049
NSN 4130-01-562-9914

The large field refrigeration system comprises an 8 ft x 8 ft x 20 ft insulated container that meets ISO Type 1, 20-foot standards (ISO-20). Characteristics, capabilities, and features are as follows:

- Dual mode to refrigerate or freeze perishable items.
- Ambient temperature of enclosure: -25 °F to 135 °F.
- Refrigerant: R-404A.
- Operational weight: 8,500 pounds.
- Designed to be portable and has lifting slots that allow for the use of a forklift during installation of the refrigeration box.
- 208 VAC/3-phase, 4-wire power requirement.

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CHAPTER 5

SAFETY AND SANITATION

Field conditions in expeditionary operations can change rapidly and require foresight to deal with environmental stresses. Urban warfare may require Marines 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 have the potential of being contaminated or destroyed.

Food service specialists will have to establish a field mess site, setup and operate sanitation capability, provide field expedient handwashing devices, and dig soakage pits, if required. Augmentation with mess attendants is essential to ensure mission accomplishment. The number of personnel required depends on unit personnel end strength, mission, type of rations being prepared, and type of feeding (e.g., remote site feeding, base camp feeding).

All authorized table of equipment must be mission capable and part of a cyclic preventive maintenance program. Marines must be properly trained in the use and safety of field mess equipment. Equipment TMs provide specific guidelines on the safe operation of equipment.

NAVMED P-5010-1 provides guidance on field food service sanitation. Keeping the field mess area safe and sanitary takes more time and precautions than in garrison operations. Food and water supplies must be carefully controlled and maintained in secure locations. Regular and careful inspection of food is of paramount importance and can help prevent foodborne illnesses or threat of

contamination. Mishandling of food and water supplies leaves the unit susceptible to foodborne illness or enemy contamination. To prevent these threats, 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 sanitation procedures.
- Prevent the growth of microorganisms using proper temperature controls.
- Train personnel in food sanitation standards and in personal health and hygiene matters.
- Dispose of all food-related waste as outlined in NAVMED P-5010-1.
- Ensure vehicles used for transporting rations are sanitary.
- Ensure food and water storage areas are secured and monitored.
- Ensure perishable rations are refrigerated; therefore, extreme care should be used to prevent the potential for foodborne illness.
- Prepare well defined OPLANs for field mess requirements. The OPLAN will dictate feeding support requirements.

The use of proper sanitary measures is extremely critical. The following measures must be emphasized:

- Food handlers should keep serving containers covered, unless actually in use.
- Dishwashing is accomplished using a three-compartment sink. The proper temperature and chemicals used are listed in NAVMED P-5010-1.

Combat Field Feeding

Logistical support areas in the theater are high priority targets for enemy CBRN employment. Sophisticated delivery systems for CBRN 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 CBRN threat is the ability to continue operations while subjected to a CBRN 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 are 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.

Marines should use caution when operating 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, collisions, and falls are common accidents in a field mess. Training can curtail unsafe working conditions and careless use of equipment. Accidents cost money through the loss of man hours and through damaged food and equipment. The resulting loss of personnel, subsistence, and equipment could negatively affect mission success. For detailed information on safety, refer to DOD Regulation 4140.1-R, *DoD Supply Chain Materiel Management Regulation*, and MCO 4450.14, *Joint Service Manual (JSM) for Storage and Material Handling*.

Food and Water Risk Assessment

In some areas of operations, availability of approved sources of supply for subsistence and water (bottled) may not be available. In these cases, commanders are required to have a food and water risk assessment completed. Army veterinary personnel are required to complete these assessments for operational commanders. Technical Guide 248, *Guide for Deployed Preventive Medicine Personnel on Health Risk Management*, provides amplifying guidance.

When an operational commander determines that contracting lodging and messing support is more economical than establishing a field mess, a food and water risk assessment must be conducted. Additionally, when a host nation is providing subsistence support, a food and water risk assessment must be conducted on those sources of supply.

Food Management

All food service and mess attendant personnel must be certified as food handlers by medical authorities in accordance with the current edition of NAVMED P-5010-1. Food service specialist personnel must ensure that the following tasks are completed:

- When A-rations are added to the UGR meals, adequate refrigeration support must be provided. Where adequate refrigeration capability is not available, UGR or PORs will be used exclusively.
- Insulated food containers will be cleaned and sanitized before use. Per NAVMED P-5010-1, containers will be prechilled or preheated as appropriate. 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.
- Individually packaged condiments are preferred in the field; however, condiments may be dispensed from sanitary dispensers.

- Field expedient handwashing facilities will be provided at food preparation, serving, and entry areas.
- Waste will be disposed of to minimize insect and rodent attraction. Garbage 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 unless approved by the appropriate authorities (US Army veterinary or medical personnel).

Note: When authorized for consumption, fruits and vegetables, including leafy vegetables, may be eaten raw if thoroughly washed in clean potable water, and 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, backhaul, or use dumpsters to dispose of waste from field mess sites. The policy on garbage disposal in an area of operations must be disseminated. Waste must be removed from the kitchen area daily.

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 ft (1.2 meters) square and 4 ft (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 5-1 below shows how to build a soakage trench with a grease trap. Due to environmental concerns, liquid/solid grease may require separate disposal per local regulations.

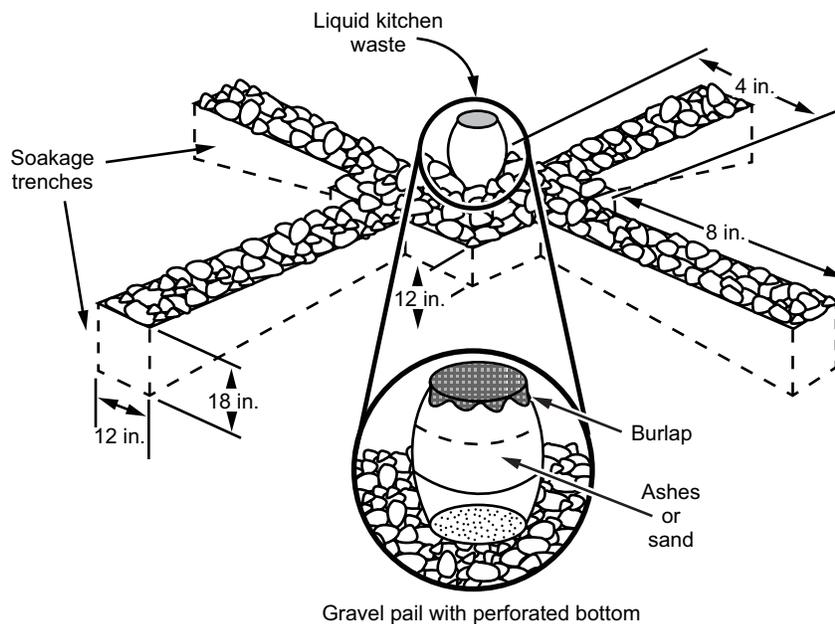


Figure 5-1. Soakage Trench with Grease Trap.

Solid Waste

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

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 one week, solid waste may be buried in pits or trenches. These pits or trenches must be at least 90 ft (27 meters) from the dining area and at least 90 ft (27 meters) away from any water source used for cooking or drinking. If the unit will be at the site for only one day, the garbage pit is used. If the unit will be at the site for two days to one week, a garbage trench is used. Prior to disposal, cans are flattened and boxes are broken down.

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

one week, solid waste may be burned in an open incinerator, either inclined or cross-trench. Liquid waste must be separated from solid waste. This can be done by straining the garbage through a coarse strainer, such as an oil can or 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 ft (45 meters) from the mess tent and dining areas so that the odor will not affect the Marines. Figure 5-2 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.

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.

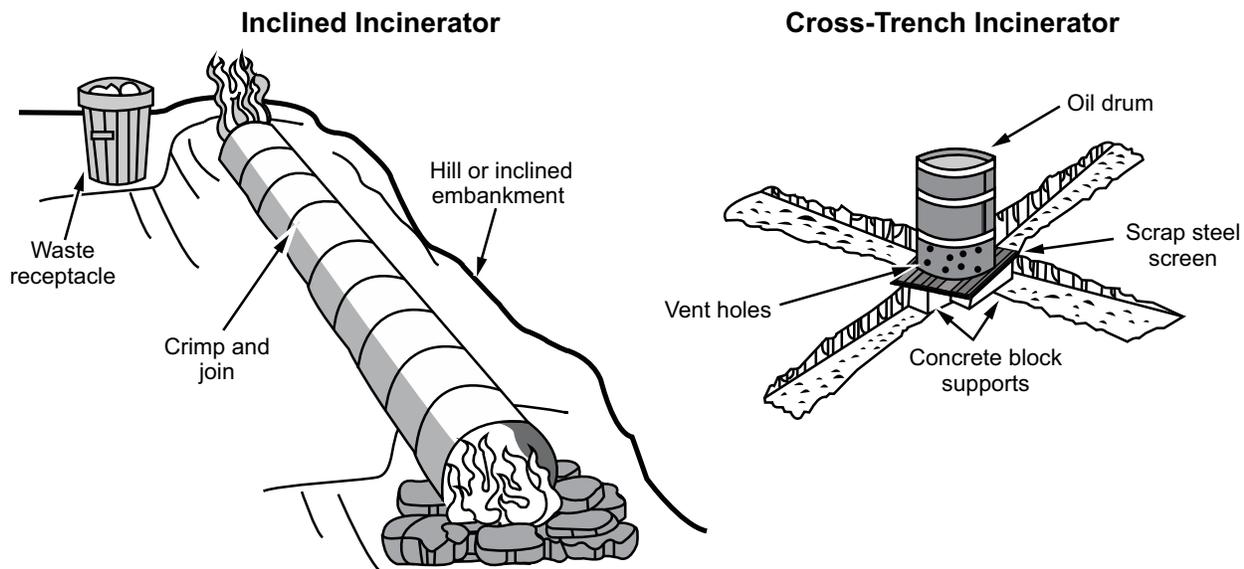


Figure 5-2. Inclined and Cross-Trench Incinerators.

Protection from Contamination

Personnel Protection

Generally, food is not prepared or served in an environment contaminated by CBRN agents. While food service Marines have the basic understanding to detect contamination, the responsibility of decontamination of subsistence items falls to the Army veterinarians, Navy medical personnel, and CBRN specialists. Field messes must be decontaminated before food service operations can resume.

Subsistence and Water Source Protection

Subsistence and water sources must be protected from CBRN contamination. Procedures must be a part of OPLANs and SOPs at all levels. Consuming contaminated food or water may cause illness, injury, or death. Food stored outdoors should be covered as mustard agents will damage or degrade most protective wraps. Some subsistence and water may be decontaminated and consumed; however, decontamination is often a difficult and time-consuming process. Subsistence and water must be stored in ways that provide maximum protection in the presence of CBRN 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 packaging, may be stored outdoors or in partially protected areas. Foods not packaged in this manner must have interior covered storage to protect from CBRN contamination.

Subsistence and Water Source Inspection

Food or water sources 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 preventive medical unit tests bulk water sources. 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 CBRN 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 CBRN agents, they must be decontaminated. 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 decontaminants are removed before food products can be prepared.

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CHAPTER 6

STORAGE AND TURN-IN PROCEDURES

Types of Storage

A covered storage area is in a walled and roofed structure. An open storage area provides protection that can vary from no protection to protection by tarpaulins, tents, huts, or sheds. Class I supplies, even semiperishables, 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 packing 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.

Perishable Storage

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 P-5010-1, 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 32 °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 causes the item to dry out.

High Humidity

Avoid high humidity when possible because it encourages the growth of bacteria and mold 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.

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 up off the floor and permit the free circulation of air. Storage 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 packing, 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 as determined by an Army veterinarian. If perishables are stored properly, they should show no major loss of quality within 20 percent of their storage life.

Semiperishable Storage

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 safe for consumption during their shelf life and possibly beyond.

Note: Only Army veterinary personnel can inspect a product and 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. Packaged operational ration cases may be stacked up to three 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 POR

pouches may be cut or punctured. This damage can lead to serious health risk if items are not properly handled and inspected by Army veterinary personnel. Metal cans are not generally engineered for freezing. Frozen cans and POR 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 PORs decreases as storage temperatures increase. Unitized group rations 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 and steam or heat pipes or in metal buildings and trailers without adequate ventilation to prevent heat buildup. 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.

Exposure to Light

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

Material Handling Equipment

Personnel managing the Class I lot need to be familiar with MHE requirements for the operation.

Note: As with other areas, this will be METT-T dependant, and it could be impacted by executive agent theater support.

Depending on the size and duration of the operation, unit organic assets may not be sufficient to manage a large Class I lot. Many suppliers are conforming to commercial standards, which utilize 20-ft and 40-ft containers for shipping rations. The Class I lot may need a variety of MHE on-hand to accommodate material handling operations. Typical organic assets include:

- Extended boom forklift.
- Rubber-tired, articulated-steering, multipurpose tractor.
- 5k tactical forklift.

Kalamar lift truck and pallet jacks are additional assets that may be required for larger operations and may require advanced or special planning.

Packaged Operational Rations Handling in Freezing Temperatures

The flexible film pouch used for POR items—such as the entree or wet pack fruit—becomes less flexible and 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.

To reduce the possibility of damaged pouches and foodborne illnesses, the following procedures should be followed:

- PORs that become frozen during exercises should be kept frozen until issued for immediate consumption.

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

Note: The time and temperature period stated would allow the contents of the pouches to react if spoilage bacteria are present.

- PORs not intended for freezing should not be frozen.
- PORs should not be cycled through more than five freeze/thaw cycles.

Note: The product quality will deteriorate with each freeze/thaw cycle, but the food will remain wholesome as long as the pouch is not damaged.

Sanitation at Storage Points

Sanitation, as a subsistence supply activity, must be maintained in accordance with NAVMED P-5010-1. 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 and the flameless ration heater.

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 and ready to eat items

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. Handwashing facilities should be readily available.

Pest Control

Personnel assigned to the Class I supply point 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 possible, subsistence should be on shelves or dunnage a minimum of six inches off the floor or ground, and a minimum of four 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 rodent 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.

Inspections

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 must 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. The accountable officer is responsible for inspecting all subsistence as it is received at a supply point. The Army veterinary food inspector on receipt does not inspect semiperishable items coming from an approved source of supply 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 Army veterinary food inspector stamps the delivery documents. Army veterinary food inspectors are also responsible for conducting inspections on subsistence in storage to detect

early signs of deteriorating food. Cases of semi-perishables that pass inspection are stamped with an inspection test date. The inspection test date 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.

Visual Inspection

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.

Sampling Inspection

In sampling, the Army veterinary food inspector chooses a number of units at random and inspects them thoroughly. If any of the samples are damaged or deteriorated, the Army veterinary food inspector performs a full inspection. Items used during sampling inspections are accounted for on Department of Army Form DA 7539, *Request for Veterinary Laboratory Testing & Food Sample Record*, as an identifiable loss.

Full Inspection

Full inspections should be conducted prior to procuring items from sources not previously approved. The Army veterinary food inspector thoroughly examines all units of a particular item or shipment. Damaged or deteriorated items are set aside, and the Army 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 Army 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.

Operational Rations Inspections

Packages are inspected for damage such as swelling, rust, and gray spotting. Packages 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 so severe 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, an Army 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 Army 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 products should be checked for signs of thawing and refreezing (packages are checked on all sides for ice, which is a sign that they have thawed and have refrozen). If there are signs of thawing, Army veterinary food inspectors should perform an open package inspection prior to usage. The findings and recommendations for disposal will be presented to the accountable officer.

United States Army Veterinary Services

As the DOD executive agent for veterinary services, the US Army Veterinary Service is responsible for all aspects of military veterinary medicine, which includes food wholesomeness and food safety assurance mission. Regional veterinary service support commands are responsible for the development of a product verification program that will ensure the quality of food ordered at the food establishment. This program includes cursory spot checks, specific product audits, and special audits directed by Defense Personnel Support Activity or at the customer's request. Veterinary services should be utilized to the fullest extent possible by all Navy and Marine Corps food establishments. The following services are available:

- Training of ordering activity (receiving) personnel in evaluating food products at receipt, to include delivery vehicle sanitation and specific commodity knowledge.
- Laboratory examination of food products.
- Development of the approved lists of food suppliers and the publication of USAPHC Circular 40-1, *Worldwide Directory of Sanitarily Approved Food Establishments for Armed Forces Procurement*.

Marine Corps Field Feeding Program Accountability

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 (rations warehouse). 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 group rations and PORs are recorded under a single NSN for each module type. A-ration enhancements will be accounted for by the pack size or unit of issue (e.g., can, pound). Accountability for receipt and issue of Class I will remain the same regardless of the type of distribution system (i.e., push or pull).

Receipt

Receipts must be obtained from approved local vendors or the ration issue point when rations are received. When receiving rations, 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. 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. Unit commanders will ensure field mess financial records are reconciled regularly before departing. If the troop issue subsistence

activity 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. Personnel must 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.

All subsistence accounting must be kept accurate and up-to-date. During wartime, the method for accounting is referred to as combat accountability (rations issued equals rations consumed). 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 no 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 accounting. This will allow submission of the quarterly QSFR required by the MEF. Supporting documents will include the following:

- QSFR.
- NAVMC 565-1, *Man-Day Fed Report*, for each day of feeding.
- Day folders for each day of feeding:
 - ◆ Subsistence issue receipts.
 - ◆ Stock record and inventory control cards.

- ◆ Inventory, requisition, and issue forms.
- ◆ Daily cost analysis/financial status.
- NAVMC 10789, *Meal Verification Record*, if applicable (copy of personnel status report for all block signatures).
- NAVMC 10298, *Cash Meal Payment Sheet*, if applicable.
- NAVMC 565-1, consolidated for each operation, if applicable.
- Voucher for disbursement and/or collections (SF 1080, *Voucher for Transfer Between Appropriations and/or Funds*, or DD Form 1131, *Cash Collection Voucher*), if applicable.
- Applicable HNS and/or HNM billing documents.
- Copies of invitational travel orders for foreign military personnel, if applicable.
- Applicable inter-Service/intra-Service support agreements or memorandums of understanding.
- POR and UGR 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 Form 817, *Quality Assurance Representative's Correspondence*, or DA Form 7539).

The submission to the MEF will include the following:

- QSFR.
- NAVMC 565-1, consolidated for each operation.
- Voucher for disbursement and/or collections (SF 1080 or DD Form 1131).
- Applicable HNS and/or HNM billing documents.
- Copies of invitational travel orders for foreign military personnel, if applicable.
- Applicable inter-Service/intra-Service support agreements or memorandums of understanding.
- A consolidated quarterly QSFR of all field feeding, listing each operation separately will

be submitted from each MEF to MCICOM G-4 no later than 15 days after the last day of each quarter.

- The QSFR must be maintained at the reporting MSC for 2 fiscal years (plus current year).

The QSFR provides accurate accounting of MPMC subsistence funds (MPMC 1105) to MCICOM G-4 for the purchase and consumption of UGRs, 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 HQMC Programs and Resources Department (Code P&R), Fiscal Division (Code RFD).

Combat accountability is a modification to normal operating accounting and reporting procedures and is used during wartime or contingency operations. When the Commandant of the Marine Corps authorizes combat accountability for procurement of Class I using MPMC 1105 funding, reporting guidance will be provided to the force commander. When the Marine Corps is the executive agent for Class I operations/funding, amplifying guidance may be published accordingly in the applicable annex of the OPORD. A monthly combat accountability subsistence report—with the type of food items, 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 MCICOM G-4.

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 Army veterinary

personnel. All unopened Class I items 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 packing, and quantity. 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) 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 Army veterinary personnel, the unit possessing the rations will provide the personnel to unload and sort the rations for the inspection. Once Army veterinary personnel have completed their inspection and documented findings, units will then make an appointment with the ration platoon for final turn-in.

Army 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. Army veterinary personnel will document nonconforming actions by the unit and issue memorandums to appropriate commands for action as deemed necessary. The command's field mess 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 UGRs that have remaining component items for future use. Packaged operational ration boxes (not individual meals) that have been veterinarian inspected and deemed safe can be transferred for use during a

future exercise or maintained by the unit for 30 days. In accordance with guidance and proper coordination with base or installation FSO, UGR-A, UGR-B, and UGR-H&S components can be

transferred to another field mess or supporting garrison mess hall on a nonreimbursable basis. Residual rations cannot be donated or provided to any external organization.

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APPENDIX A

DEPLOYMENT PLANNING CONSIDERATIONS

Mission

- What is the unit's mission?
- What are the geographical, climatic, and environmental factors impacting mission accomplishment?
- What is the projected length of mission?
- Was the logistic support plan and Annex D (Logistics) to the OPOD evaluated?
- 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 logistic support plan or Class I portion of Annex D (Logistics) to the OPOD?
- Should the basic load of Class I DOS 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 the 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 Army veterinary personnel available for subsistence support requirements?
- If there are HNS facilities, do they meet US sanitation guidelines? (refer to NAVMED P-5010-1)
- Has funding for the HNS been established?

Personnel

- 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 area of operations.
- Determine if personnel are trained in accountability procedures.
- Determine cash meal payment and/or field meal reimbursement procedures.
- Review medical threat briefing with particular attention to potable water supply, chlorine residual, foodborne illnesses of local populations, and sanitary quality of local food supply.

Equipment

- Review table of equipment, 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.

Supplies

- 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 resupply procedures for fuel, water, and disposables.

Subsistence

- 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.
- Determine if the menu has been published and distributed.

- Determine if enhancements have been requested and programmed.
- Determine if warming and cooling beverages have 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.

Miscellaneous

- 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 TRHS forward to deployed units.
- Review equipment operations, safety, and sanitation requirements with team.
- Identify any site specific environmental issues.
- Coordinate with CBRN personnel for potential decontamination support.
- Identify forms for daily folder.
- Procure US Government laptop computer.
- File copies of invoices for operational rations and/or enhancements ordered.

APPENDIX B

DEPLOYMENT CHECKLISTS, FLOWCHARTS, AND FOOD SERVICE CAPABILITY SETS

SECTION I. CHECKLISTS

Predeployment Checklist

Projected/ Submitted	Completed	Action Required	
		Review local standard operating procedures	
		Site survey (trash/gray water disposal)	
		Feed plan submitted to appropriate channels	
		Rations requests (30 days CONUS, 90 days OCONUS)	
		Enhancements submission	
		Submit environmental request (if applicable)	
		Predeployment equipment checks	
		Heavy equipment lift requirements identified and submitted	
		Joint limited technical inspection (if required)	
		Bill of materials list submitted	
		Personnel (cooks/messmen) identified	
		Cooks/messmen physicals completed	
		Personnel gear inspections	
		Contractor (S-4/supply officer) requests submitted	
		Daily cost analysis financial preparations (deployable computer)	
		Embark staging	(date and location)
		Power, water, and fuel requirements submitted	
		Supporting equipment (e.g., 6 containers together, tents, water bladders) plus additional items as needed	
		Preventive medical unit point of contact	(name)
		Army veterinary point of contact	(name)
		Contact made with motor transport representative	(name)
		Contact made with engineer/generator mechanic	(name)
		Camp commandant/company GySgt	(name)

Notes:

Post-Deployment Checklist

Projected/ Submitted	Completed	Action Required	
		Collect and retain true-bills/1348s	
		Schedule veterinary appointment	
		Rations turn in	
		Equipment repairs using exercise cost job order number (JON)	
		Submit subsistence financial report	
		After action report	

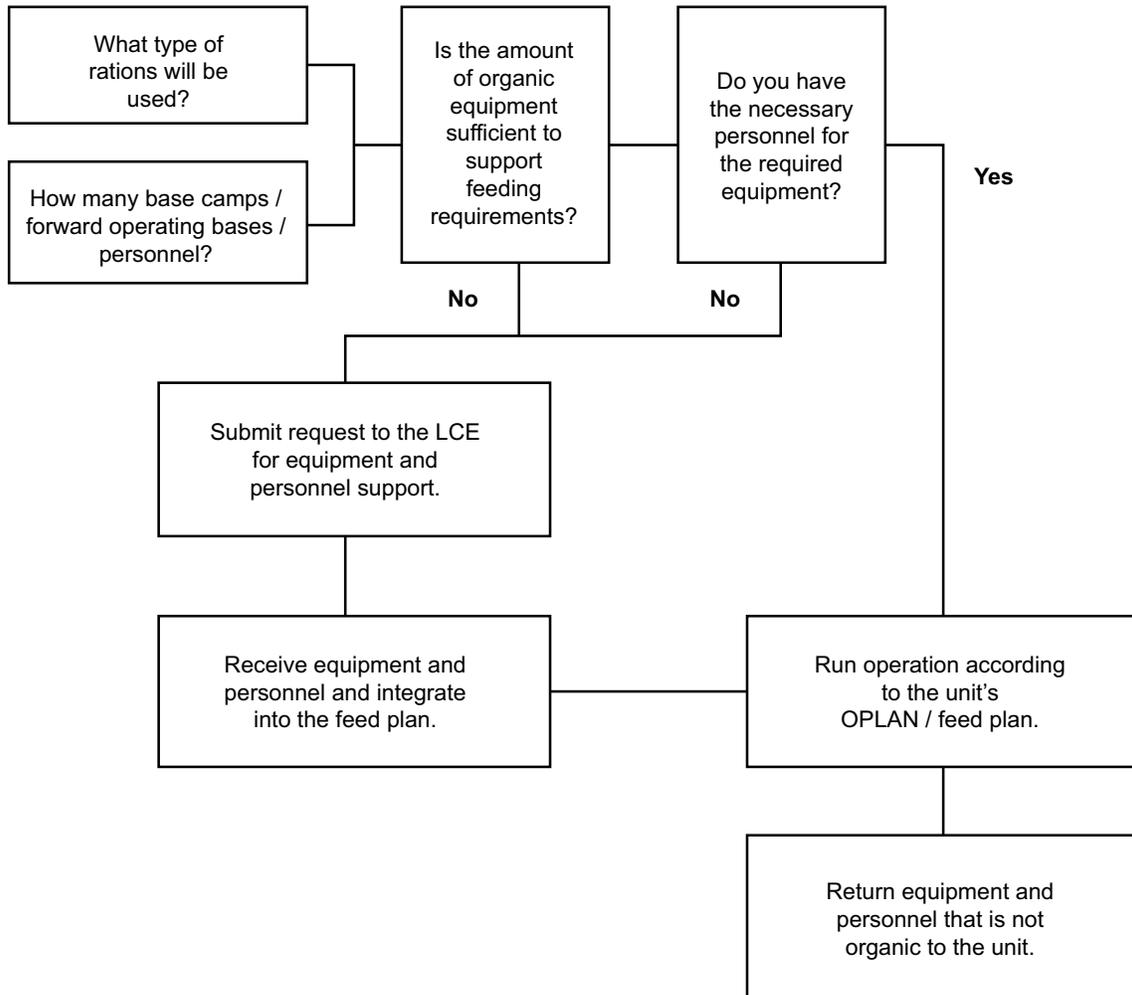
Notes:

SECTION II. FLOWCHARTS

Equipment and Personnel Planning Flowchart

When computing equipment and personnel, multiple feeding locations (e.g., base camp, forward

operating base sites) should be taken into account. Use the following equipment and personnel planning flowchart as a guide and submit requests through appropriate channels.

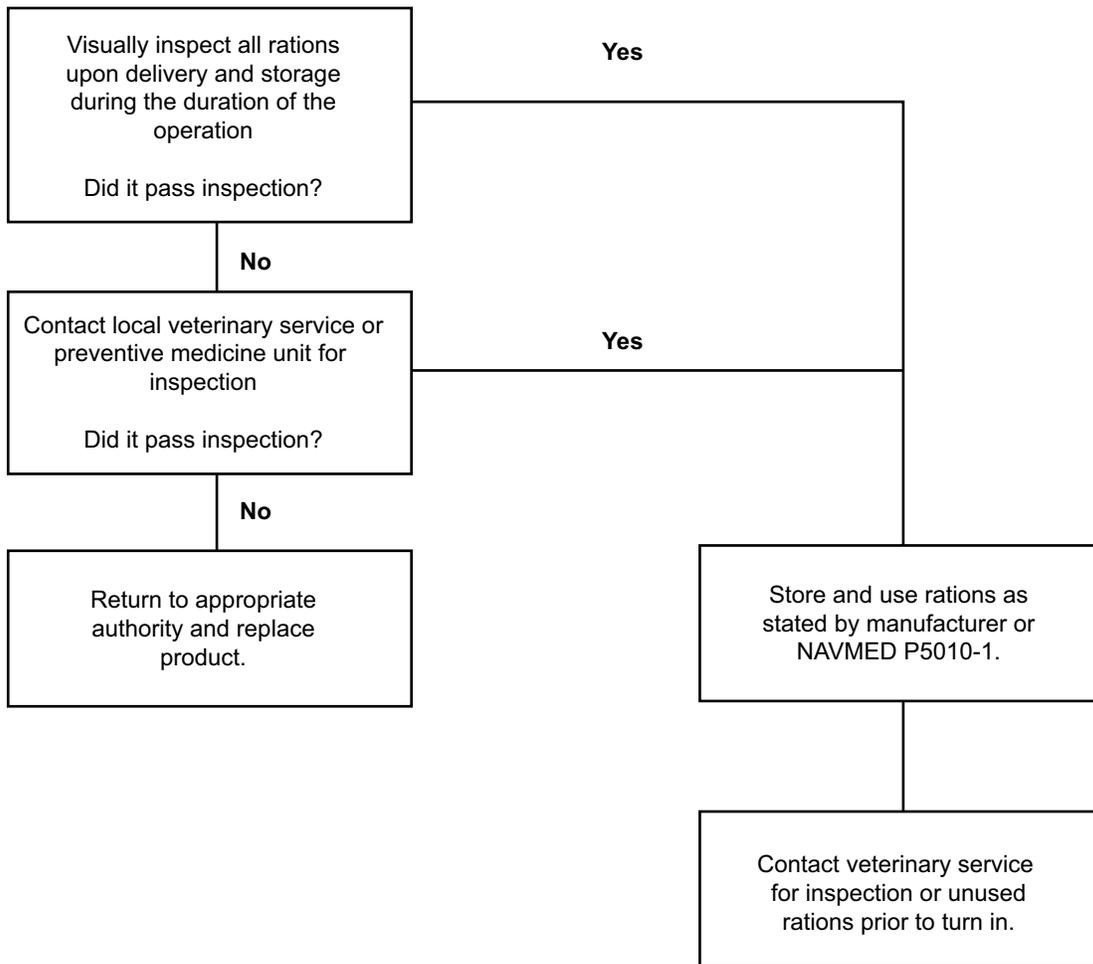


**Inspection of Rations
Flowchart (receiving and storage)**

The following flowchart should be used when inspecting rations. Remember to—

- Look for noticeable defects (e.g., broken seals, boxes, leaking cans).
- Look for abnormal colors and odors before using products.

- Verify expiration date.
- Use your local Army veterinary service for all inspections; if the Army veterinary service is not available, contact preventive medicine unit.
- Record results from inspections on appropriate forms according to the product and/or status of product after inspection.
- Inspect, by Army veterinary service personnel, all rations upon turn in for proper disposition.



SECTION III. FOOD SERVICE CAPABILITIES SETS**MEF Headquarters Group**

10 TRHS feeds 250 each = 2500 total
2500 total capability to support planning factor

Infantry Regiment

1 TRHS feeds 250 each = 250 total
250 total capability to support planning factor

Infantry Battalion

3 TRHS feeds 250 each = 750 total
750 total capability to support planning factor

Marine Wing Support Squadron

7 TRHS feeds 250 each = 1750 total
1 E-TRHS feeds 350 each = 350 total
2 EFK feeds 700 each = 1400 total
3500 total capability to support planning factor

Marine Logistics Group

15 TRHS feeds 250 each = 3750 total
10 E-TRHS feeds 350 each = 3500 total
18 EFK feeds 700 each = 12600 total
19850 total capability to support planning factor

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APPENDIX C

RATIONS TRANSITION SUPPORT PLAN

Time Flow	O+1	O+2	O+3	O+4	O+5	O+6	O+7	O+8	O+9	O+10	O+11	O+12	O+13	O+14	O+15	Subtotal
Personnel	5056	6083	7007	7839	8588	9261	9868	10413	10904	11346	16159	16159	16159	16159	16159	
MREs (3 meals)	15168	18249	21021	23517	25764	27783	29604	31239	32712	34038	48477	48477	48477	48477	48477	501,480
MREs (1 meal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UGR-H&S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UGR-B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Time Flow	O+16	O+17	O+18	O+19	O+20	O+21	O+22	O+23	O+24	O+25	O+26	O+27	O+28	O+29	O+30	Subtotal
Personnel	16159	16159	16159	16159	16159	16159	16159	16159	16159	16159	16159	16159	16159	16159	16159	
MREs (3 meals)	48477	48477	48477	48477	48477	0	0	0	0	0	0	0	0	0	0	242,385
MREs (1 meal)	0	0	0	0	0	16159	16159	16159	16159	16159	16159	16159	16159	16159	16159	161,590
UGR-H&S	0	0	0	0	0	32318	32318	32318	32318	32318	32318	32318	32318	32318	32318	323,180
UGR-B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Time Flow	Grand Total Meals	Grand Total in BX/MOD
MREs (3 meals)	743,865	61,989
MREs (1 meal)	161,590	13,466
UGR-H&S	323,180	6,464
UGR-B	0	0

Time Flow	O+31	O+32	O+33	O+34	O+35	O+36	O+37	O+38	O+39	O+40	O+41	O+42	O+43	O+44	O+45	Subtotal
Personnel	18324	18324	18324	21189	23768	26089	28178	30058	31750	33273	46973	46973	46973	46973	46973	
MREs (3 meals)	10994	10994	10994	12713	14261	15653	16907	18035	19050	19964	28184	28184	28184	28184	28184	290,485
MREs (1 meal)	14659	14659	14659	16951	19014	20871	22542	24046	25400	26618	37578	37578	37578	37578	37578	387,314
UGR-H&S	18324	18324	18324	21189	23768	26089	28178	30058	31750	33273	46973	46973	46973	46973	46973	484,142
UGR-B	10994	10994	10994	12713	14261	15653	16907	18035	19050	19964	28184	28184	28184	28184	28184	290,485

Time Flow	O+46	O+47	O+48	O+49	O+50	O+51	O+52	O+53	O+54	O+55	O+56	O+57	O+58	O+59	O+60	Subtotal
Personnel	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	
MREs (3 meals)	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	422,757
MREs (1 meal)	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	563,676
UGR-H&S	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	704,595
UGR-B0	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	422,757

Time Flow	Grand Total Meals	Grand Total in BX/MOD
MREs (3 meals)	743,865	61,989
MREs (1 meal)	161,590	13,466
UGR-H&S	323,180	6,464
UGR-B	0	0

Time Flow	O+61	O+62	O+63	O+64	O+65	O+66	O+67	O+68	O+69	O+70	O+71	O+72	O+73	O+74	O+75	Subtotal
Personnel	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	
MREs (3 meals)	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	422,757
MREs (1 meal)	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	563,676
UGR-H&S	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	704,595
UGR-B	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	422,757

Time Flow	O+76	O+77	O+78	O+79	O+80	O+81	O+82	O+83	O+84	O+85	O+86	O+87	O+88	O+89	O+90	Subtotal
Personnel	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	
MREs (3 meals)	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	422,757
MREs (1 meal)	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	37578	563,676
UGR-H&S	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	46973	704,595
UGR-B	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	28184	422,757

Time Flow	Grand Total Meals	Grand Total in BX/MOD
MREs (3 meals)	845,514	70,460
MREs (1 meal)	1,127,352	93,946
UGR-H&S	1,409,190	28,184
UGR-B	845,514	16,910

	Days 1-30	Days 31-60	Days 61-90	Totals	Total BRK	Total BRK	Total DIN	Total DIN	Total MREs	Total Cost (dollars)
	By BX/MOD	By BX/MOD	By BX/MOD	By BX/MOD	Modules	Pallets	Modules	Pallets	Pallets	Rations
MREs (3 meals)	61,989	59,437	70,460	191,886	N/A	N/A	N/A	N/A	3,998	16,394,663
MREs (1 meal)	13,466	79,249	93,946	186,661	N/A	N/A	N/A	N/A	3,889	15,948,313
MREs (total)	75,455	138,686	164,406	378,547					7,886	32,342,976
UGR-H&S	6,464	23,775	28,184	58,423	29,211	3,651	29,211	3,651		17,016,325
UGR-B	0	14,265	16,910	31,175	15,588	1,948	15,588	1,948		9,783,916
									Grand Total	91,486,188

Legend

BRK breakfast
 BX box
 DIN dinner
 MOD module

Notes:

1. MRE unit of issue is box (12 meals per box): 48 boxes per standard warehouse pallet; 12 meals per box x 48 boxes per pallet = 576 meals per pallet.

(Special note: 760 boxes fit in a 20 foot ISO container).

2. UGR-H&S unit of issue is each ("each" is one module of 50 portions; 1 portion is 1 meal): each module comes in 3 boxes; 24 boxes (8 modules) per standard warehouse pallet; 50 portions per module (3 boxes) x 8 modules (24 boxes) per pallet = 400 portions per pallet.

3. UGR-B unit of issue is each ("each" is one module of 50 portions; 1 portion is 1 meal): each module comes in 3 boxes; 24 boxes (8 modules) per pallet; 50 portions per module (3 boxes) x 8 modules (24 boxes) per pallet = 400 portions per pallet.

APPENDIX D

ICE REQUIREMENTS

The planning factor for potable ice is based on—

- 6 pounds for each Marine per day in a temperate climate.
- 11 pounds for each Marine per day in an arid climate.

Although ice is a Class I item, it will not be purchased with subsistence funds; operational or exercise O&MMC funds will be used.

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

Temperate climate

- 6 lbs per Marine per day.
- $700 \text{ Marines} \times 6 \text{ lbs} = 4,200 \text{ lbs per day}$.
- $4,200 \text{ lbs} \times 7 \text{ days} = 29,400 \text{ lbs for 7 days}$.

Arid climate

- 11 lbs per Marine per day.
- $700 \text{ Marines} \times 11 \text{ lbs} = 7,700 \text{ lbs per day}$.
- $7,700 \text{ lbs} \times 7 \text{ days} = 53,900 \text{ lbs for 7 days}$.

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APPENDIX E

FUEL REQUIREMENTS

To feed 700 personnel for 7 days (two hot meals, UGR-B or UGR-H&S; 14 hot meals total) the amount of fuel is determined by using the following guidelines:

Field food service system

- One per 850 personnel.
- Fuel requirements depend on the quantity and type of generators used; for additional information coordinate with bulk fuel and utilities.

TRHS

- One per 250 personnel.
- 700 personnel divided by 250 personnel per TRHS = 2.8 TRHS.
- 2.8 TRHS x 90 minutes of fuel consumption per TRHS per meal = 252 minutes.

Note: The estimated 90 minutes per 250 servings is based on using multiple feeding sites.

- 252 minutes divided by 60 minutes per hour = 4.2 hours.
- 4.2 hours per meal x 14 meals = 58.8 (59) hours.
- 5 gal of fuel will burn continuously for approximately 10 hours.
- 59 hours divided by 10 hours = 5.9 10-hour periods.
- 5 gallons of fuel per 10-hour period x 5.9 10-hour periods = 30 gallons.
- 30 gallons of fuel will support 59 hours of continuous burning.

Note: The TRHS will automatically shut off and turn on when the switch is placed on automatic, allowing for more than 10 hours of use.

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APPENDIX F

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

Temperate Zones	Daily Gallons-Per-Man Requirements	
	Sustaining	Minimum
Company		
Drinking	1.5	1.5
Personal hygiene	1.7	0.3
Field feeding	0.3	0.8
Subtotal	3.5	2.6
+10% Waste	0.4	0.3
Total	3.9	2.9
Battalion		
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
Regimental Landing Team		
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
MEF		
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
Company		
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
Battalion		
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
Regimental Landing Team		
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
MEF		
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
Company		
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
Battalion		
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
Regimental Landing Team		
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
MEF		
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

Arid Zones (cont'd)	Daily Gallons-Per-Man Requirements	
	Sustaining	Minimum
Aircraft maintenance	0.2	0.2
Laundry	2.1	0.0
Subtotal	16.7	8.6
+10% Waste	1.7	0.9
Total	18.4	9.5
Arctic Zones	Daily Gallons-Per-Man Requirements	
	Sustaining	Minimum
Company		
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
Battalion		
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
Regimental Landing Team		
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
MEF		
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

GLOSSARY

SECTION I. ACRONYMS

ACE	aviation combat element	kg	kilogram(s)
AIS	automated information systems	kW.....	kilowatt
C	Celsius	lb	pound(s)
CBRN	chemical, biological, radiological, and nuclear	LCE.....	logistics combat element
cm	centimeter(s)	LOGCAP	logistics civil augmentation program
CONUS.....	continental United States	m ³	cubic meter(s)
cu.....	cubic	MAGTF	Marine air-ground task force
DC, I&L	Deputy Commandant for Installations and Logistics	MCFFP	Marine Corps field feeding program
DLA	Defense Logistics Agency	MCICOM	Marine Corps Installations Command
DOD	Department of Defense	MCO	Marine Corps order
DOS	days of supply	MCW	meal, cold weather
EDL.....	equipment density list	MEB	Marine expeditionary brigade
EFK.....	expeditionary field kitchen	MEF	Marine expeditionary force
ERU	enhanced refrigeration unit	MEP	mobile electric power
E-TRHS	enhanced-tray ration heating system	METT-T	mission, enemy, terrain and weather, troops and support available-time available
F	Fahrenheit	MHE	materials handling equipment
FFSS	field food service system	MIL-HDBK	military handbook
FSO.....	food service officer	MIL-STD	military standard
FSR.....	first strike ration	mm	millimeter(s)
FSU.....	field sanitation unit	MOS	military occupational specialty
ft	foot/feet	MPF	maritime prepositioning force
G4	assistant chief of staff, logistics	MPMC	Military Personnel, Marine Corps
gal	gallon	MPSRON	maritime prepositioning ships squadron
GCE	ground combat element	MRE	meal, ready to eat
HCP.....	health and comfort pack	MTVR.....	medium tactical vehicle replacement
HMMWV	high mobility multipurpose wheeled vehicle	NATO	North Atlantic Treaty Organization
HNM.....	host nation messing	NAVAIR.....	Naval Air Systems Command
HNS	host-nation support	NAVMC	Navy/Marine Corps departmental publication
HQMC	Headquarters, Marine Corps	NAVMED.....	naval medical publication
Hz	hertz	NSN	national stock number
in.	inches	O&MMC.....	Operations and Maintenance, Marine Corps
ISO	International Organization for Standardization	OCONUS	outside the continental United States

SECTION II. DEFINITIONS

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.

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

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—Feeding in which the contractor or host nation procures only bulk food from an approved supply source. The Military Services set up a field mess and prepare their own meals. Written agreements of support, payment, and approval of a funding source is accomplished prior to support being provided.

food service host-nation support—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**.

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—Feeding that consists of one or more of the following types of support: host-nation support, host nation messing, contract feeding, and field support.

host nation messing—Bulk food purchased for US military organizations (as opposed to individual Service members), 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**.

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 operational 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**.

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REFERENCES AND RELATED PUBLICATIONS

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United States Code, Title 10, *Armed Forces*

Department of Defense Issuances

Department of Defense Regulation (DODR)

4140.1-R DoD Supply Chain Materiel Management Regulation

Military-Standard (MIL-STD)

1366E Interface Standard for Transportability Criteria

Military-Handbook (MIL-HDBK)

1791 Designing for Internal Aerial Delivery in Fixed Wing Aircraft

Army Publications

Field Manual (FM)

10-23 Basic Doctrine for Army Field Feeding and Class I Operations Management

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40-1 Worldwide Directory of Sanitarily Approved Food Establishments for Armed Forces Procurement

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3501 Maritime Prepositioning Force (MPF) Force Lists (F/L)

10110 Meal Rates and Reimbursement Policy

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4-11.6 Petroleum and Water Logistics Operations

Marine Corps Reference Publications (MCRPs)

- 4-11.1D Field Hygiene and Sanitation
4-11.01 Waste Management for Deployed Forces

Technical Manuals (TMs)

- 10879A-12 Field Food Service System
08407A-13/1 Refrigerated Container, Field, 8' x 8' x 10'
10673A-12/2 Enhanced Refrigeration Unit 4,500 BTU/HR, 208/230 Volt, 50/60 Hertz, Model VM 405 Max EL
11609A-OI Operator/Crew and Field Level Maintenance Manual for Small Field Refrigeration System
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09211A-14&P Operation Manual and Component List for the Enhanced Tray Ration Heating System (ETRHS); Supplement to Tray Ration Heating System (TRHS), Supplement 1
07464C-10/1 Operators Manual for Generator Set, Skid Mounted, Tactical Quiet
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- 2907 Prepositioning Objective for Maritime Prepositioning Force and Marine Corps Prepositioning Program-Norway
3500.35 Food Service Training and Readiness Manual
5-56-1 Man-Day Fed Report
10789 Meal Verification Record
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- P-5010-1 Manual of Naval Preventive Medicine, Chapter 1 – Food Safety