U.S. Department
of Transportation
**United States
Coast Guard**

Food Service Sanitation Manual

Food Service Training, Sanitation and Safety

COMDTINST M6240.4A

U.S. Department of Transportation
United States Coast Guard

Commandant
U. S. Coast Guard

2100 Second St. S.W.
Washington, DC 20593-0001
Staff Symbol: G-KSE-3
Phone: (202) 267-0877

COMDTINST M6240.4A
31 AUG 1993

COMMANDANT INSTRUCTION M6240.4A

Subj: FOOD SERVICE SANITATION MANUAL

1. PURPOSE. This Manual establishes policies, procedures and standards for the operation of Coast Guard food service facilities. Intended users are Coast Guard units which maintain food service facilities.

2. ACTION. Area and district commanders, commanders of maintenance and logistics commands, Commander, CG Activities Europe, and commanding officers of headquarters units shall ensure compliance with the provisions of this manual.

3. DIRECTIVES AFFECTED. COMDTINST M6240.4, Food Service Sanitation Manual, is canceled.

4. DISCUSSION. The Food Service Sanitation Manual sets forth the Coast Guard food service sanitation requirements as they apply to all Coast Guard operated or sanctioned food service facilities. It further defines the responsibilities for implementation of the sanitation standards, including food service personnel sanitation refresher training certification. This Manual includes detailed instructions and procedures to guide personnel involved with all phases of food service sanitation.

5. FORMS/REPORTS. Whenever an inspection of a food service establishment is made, the findings shall be recorded on the Food Service Establishment Inspection Report Form, CG-5145. Instructions for completion of this form are contained in Chapter 11.

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a. Food Service Establishment Inspection Report Form, CG-5145, shall be requisitioned from Coast Guard Supply Center Baltimore using NSN 7530-01-GF2-8950, U/I (SH).

b. Food Service Sanitation Training Certificate, CG-5254, is canceled.

c. Food Service Sanitation Training ID Card, CG-5255, is canceled.

R. R. BOCK
Chief, Office of Health and Safety
Acting

Encl: (1) Safety Precautions for Food Service Personnel
(2) Chlorine Solutions

RECORD OF CHANGES

Change Number	Date of Change	Date Entered	Entered by:

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CHAPTER 1 - GENERAL PROVISIONS

A. Purpose. The purpose of this manual is to protect the health of all Coast Guard personnel by ensuring that Coast Guard operated or sanctioned food service establishments are operated in a sanitary manner.

B. Definitions.

1. "Adulterated food" shall mean any food which:

   a. bears or contains any poisonous or deleterious substance which may be injurious to health, provided, however, if such food bears or contains any substance added thereto or found therein for which a safe tolerance or standard has been established by lawful regulation or law, such food shall not be adulterated food if such food substance is not in excess of such tolerance or standard, or

   b. consists in whole or in part of any filthy, putrid, decayed, or decomposed substance; or

   c. consists in whole or in part of the product of a diseased animal, or an animal which has died by accident, disease, or other than by slaughter, or

   d. is contained in an immediate package which is composed of any poisonous or deleterious substance which may render the contents injurious to health.

2. "Bactericidal treatment" shall mean the application of a method or substance for the destruction of all pathogens and to reduce all other microorganisms to meet the required bacteriological standards of this manual and which does not adversely affect the utensils and equipment, the food or the health of the consumer.

3. "Clean" shall mean free from physical, chemicals and microbial substance discernible by ordinary sight or touch, by ultraviolet light, or by artificial light and free from insects, vermin and debris.

4. "Closed" shall mean fitted together snugly (no opening exceeding 0.8 mm or 1/32 in.) leaving no openings large enough to permit the entrance of vermin.

5. "Coffee mess" shall mean any room, space, area, or facility authorized by the commanding officer for the purpose of preparing or dispensing coffee, tea, or similar beverages.

6. "Corrosion resistant materials" shall mean those materials that maintain their original surface characteristics after prolonged contact with food, normal use of cleaning compounds, bacterial solutions and other conditions of the environment in which they are used.

1-B-7. "Cross-connection" shall mean any connection, direct or indirect, that will permit or possibly permit the flow of a non-potable fluid into a conduit or receptacle containing, or intended to contain, potable water.

8. "Deleterious substance" shall mean any materials, foods, or other items which may be injurious to the health of all personnel.

9. "Easily Cleanable" shall mean that surfaces are readily accessible and made of such material and finish, and so fabricated that residue may be effectively removed by normal cleaning methods.

10. "Equipment" shall mean stoves, ranges, hoods, slicers, mixers, meat blocks, tables, counters, refrigerators, sinks, dishwashers, steam tables and similar items, other than utensils, used in the operation of food service facility.

11. "Food" shall mean any raw, cooked, or processed edible substance, beverage, ice, or ingredient used or intended for use, or for sale, in whole, or in part, for human consumption.

12. "Food contact surfaces" shall mean those surfaces of equipment and utensils with which food may come into contact and those surfaces that drain onto surfaces that may come into contact with food.

13. "Food processing establishment" shall mean a commercial or government operated establishment in which food is processed, prepared, packaged or distributed for human consumption.

14. "Food service establishment" shall mean any place where food is completely prepared for routine individual service and consumption. This term includes any such place regardless of whether there is or is not a charge for food. This term does not include a private home where food is prepared for individual family consumption.

15. "Food service officer" shall mean the officer or petty officer who is responsible for the operation of a food service establishment.

16. "Food service personnel" shall mean individuals working in a food service establishment.

17. "Food service space" shall mean any space used for the preparation, serving, or consumption of food items, food storage, or for utensil cleaning.

1-B-18. "Hot food storage facility" shall mean steam tables, warmers, and other hot food holding facilities capable of maintaining a safe holding temperature of not less than 140° F (60° C).

19. "Kitchenware" shall mean all multi-use utensils other than tableware.

20. "Leftover" shall mean any unserved food remaining at the end of the meal period for which it is prepared. Example: food that is remaining on the steam table, unused or partially used.

21. "Misbranding" shall mean the use of any written, printed, or graphic matter upon or accompanying products or containers of food, including signs, or placards, displayed in relation to such products so dispensed, which is false or misleading or which violates Federal labeling requirements.

22. "Mobile food unit" shall mean a food service establishment that is designed to be readily moveable.

23. "Organoleptical" shall mean acceptable to smell, touch, taste and visual observation.

24. "Packaged" shall mean bottled, canned, cartoned, or securely wrapped at a food processing establishment.

25. "Perishable food" shall mean any foods that may spoil easily when held above 40° F (4.4° C) and is potentially dangerous.

26. "Person" shall include an individual, partnership, corporation, association or other legal entity.

27. "Potentially hazardous food" shall mean any food which consists in whole or in part of milk or milk products, shell eggs, meats, poultry, fish, shellfish, edible crustacea (shrimp, lobster, crab, etc.), baked or boiled potatoes, tofu and other soy-protein foods, plant foods that have been heat-treated, raw seed sprouts, or synthetic ingredients. Potentially hazardous foods are capable of supporting rapid and progressive growth of infectious or disease-causing microorganisms. The term does not include foods that have a pH of 4.6 or less or a water activity of 0.85 or less.

28. "Pull date" shall mean the expiration of the shelf-life for the product and the date after which the product shall not be offered for sale or consumption and shall be expressed in standard date, i.e., 16 April 1978.

29. "Reconstitute" shall mean restoring water to a food that has been concentrated by dehydration or freeze drying.

1-B-30. "Safe" shall mean materials that are manufactured from or composed of materials that are not food additives as defined in Section 201 (s) or (t) of the Federal Food, Drug and Cosmetic Act as used, or are food additives or color additives as so defined and are used in conformity with regulations established by the Food and Drug Administration.

31. "Safe holding temperature" as applied to potentially hazardous food, shall mean temperatures of 40° F (4.4° C) or below when refrigerated and at least 140° F (60°C) when heated.

32. "Sanitization" shall mean effective bactericidal treatment by a process that provides enough accumulative heat or concentration of a chemical for enough time to reduce the bacterial count, including pathogens, to a safe level on utensils and equipment.

33. "Sealed" shall mean free of cracks or other openings that permit the entry or passage of moisture.

34. "Shelf-life" shall mean the maximum time elapsed from the time of preparation of the product until the item must be removed from sale or use and discarded.

35. "Single-service article" shall mean cups, containers, closures, lids, plates, knives, forks, spoons, stirrers, straws, napkins, wrapping materials, toothpicks, and similar articles designed for one-time, one-person use after which they are discarded.

36. "Storage temperature" shall mean the temperature at which the food product is stored immediately after preparation and maintained at a safe holding temperature until it is dispensed to the customer.

37. "Tableware" shall mean multi-use eating and drinking utensils.

38. "Temporary food service establishment" shall mean a food service establishment that operates at a fixed location for a period of time not more than 14 days.

39. "Temporary food service personnel" shall mean those individuals who are assigned to a food service establishment for a period of less than three months, such as messcook and scullery personnel.

40. "Utensils" shall mean any tableware and kitchenware used in the storage, preparation, conveying, or serving of food.

1-B-41. "Vending machine" shall mean any self-service device which dispenses food, either in bulk or in packages without the necessity of replenishing the device between each vending operation.

42. "Vestibule" shall mean a small entrance hall or antechamber between two doors.

43. "Wholesome" shall mean in sound condition, clean, free from adulteration and otherwise suitable for use as human food.

C. Responsibilities.

1. Unit Responsibilities.

a. The commanding officer is responsible for safeguarding the health of personnel by careful inspection of the sanitation of the unit and by preventing unnecessary exposure to disease or unsanitary conditions. The commanding officer shall assign sanitary inspection duties to the medical department representative or designee if available. However, such assignment of duties does not relieve the commanding officer of responsibility for the safety, efficiency and well-being of the command.

b. The food service officer, food service manager, or other designated individual is responsible for procurement, receipt, inspection, and storage of wholesome food items within his/her respective food service activity. The food service officer, food service manager, or other designated individual is responsible for his/her respective food service operation and is thus directly responsible for prevention of foodborne illnesses which may result from improper:

(1) cleanliness and sanitary maintenance of all food service equipment and food service spaces,

(2) supervision of personal hygiene practices of the personnel attached to the food service divisions,

(3) use of sanitizing procedures throughout the food service spaces, and

(4) sanitary preparation, serving, and storage of food.

1-C-2. Medical Department Responsibilities. The medical officer or the medical department representative is responsible for:

a. daily sanitation inspections in accordance with COMDTINST M6000.1(series), Medical Manual;

b. inspection of the storage, preparation and serving of food and the disposal of food residues;

c. inspection of food service spaces and proper cleaning of equipment, and utensils;

d. medical screening of military/civilian food service personnel for disease or unclean habits that could result in food-borne illness;

e. working in conjunction with food service personnel concerning inspections and assistance in sanitation procedures; and

f. establishing a unit food service sanitation training program for all food service personnel (recommend either quarterly or semi-annually).

3. Facilities Engineering. The public works officer shall maintain an adequate insect and rodent control program to insure elimination of pests within and around the food service establishment. All application of pesticides must be made by a certified pest control operator.

4. MLC Responsibilities. Periodic food service sanitation inspections shall be conducted of all CG food service establishments by Environmental Health Officers (EHO's) during safety and environmental health audits as per COMDTINST M5100.47(series), Safety and Environmental Health Manual.

CHAPTER 2 - FOOD CARE

A. Food Supplies. All foodstuffs shall be wholesome and free from spoilage, filth, or other contamination and shall be fit for human consumption. Food shall be obtained from sources approved by the U.S. Department of Agriculture (USDA) or an approved source from a foreign port that complies with all laws relating to food and food labeling. The use of hermetically sealed food that was not prepared in a food processing establishment is prohibited.

B. Food Protection.

1. At all times (including while being transported, stored, prepared, displayed, or served) food shall be protected from contamination by all agents, including dust, insects, unclean equipment and utensils, unnecessary handling, coughs and sneezes, flooding, draining, and overhead leakage or condensation.

2. The temperature of potentially hazardous food shall be 40° F (4.4° C) or below, or not less than 140° F (60° C), at all times except as otherwise provided in this chapter.

C. Food Inspection.

1. General.

a. All foodstuffs procured for the Armed Forces dining facilities undergo rigid inspection and are subject to various Federal and military specifications established to cover sizes, grades, appearances, and types. These inspections are made by technically qualified personnel of the military veterinary services, Defense Personnel Support Center quality assurance representatives, and the USDA inspectors.

b. The medical department representative or other qualified personnel designated by the commanding officer is responsible for inspecting all foodstuffs to determine fitness for human consumption and to ensure receipt from approved sources.

c. Occasionally, food items are procured and received that have not been inspected by qualified personnel. All food items including fresh bakery and fresh dairy products, other than milk and milk products which are delivered directly to the food service establishment by vendors, will be accepted by food service personnel and inspected in accordance with this manual. Food found not to be in compliance with USDA regulations and specifications or where there is doubt, shall be rejected as unfit for human consumption.

2-C-1. d. The medical department representative concerned with food inspections shall maintain liaison with local personnel of the military veterinary services or preventive medicine technicians to avail themselves of general information and techniques involved in foodstuffs inspections.

e. Food inspections shall be made by the medical department representative in company with the food service officer, food service manager, or other individual designated, where a combination of knowledge and training can result in an effective inspection program. The exercise of intelligence and common sense is the keynote to determining what is fit and what is unfit. Usually, foul odor and an unnatural appearance are causes for rejection; suspected foods shall never be taste tested.

f. In order to effectively perform fitness for human consumption inspections, a basic knowledge of judging foodstuffs is required.

2. Inspection of Meats and Poultry.

a. The Federal Meat Inspection Act and the Poultry Products Inspection Act provide for the inspection by an official service of U.S. Department of Agriculture of all meats, meat products, poultry and poultry products intended for interstate shipment. All such products prepared in the United States and purchased by the Armed Forces as part of the ration shall have originated in plants under the supervision of an agency of the U.S. Department of Agriculture and be so marked with the stamp of approval of that agency.

b. Meats, meat products, poultry, and poultry products destined for resale or for use in nonappropriated fund activities shall be purchased from approved plants operating under the supervision of an agency of the U.S. Department of Agriculture or under an acceptable state inspection system. To be acceptable, a state inspection system shall afford health protection and safeguards to the consumer which at least equal those provided by the federal systems.

c. The military veterinary services do not duplicate the inspections performed by federal and state agencies; however, they do complete for the military the inspections at the point of issue or sale.

2-C-3. Inspection of Fish and Shellfish.

a. Each container of unshucked shell stock (shellfish, oysters, clams, mussels) procured for military use shall be identified by an attached tag that states the name of the original shell stock shipper, the kind and quantity of shell stock, and an official certificate number issued according to the law of the jurisdiction of its origin. Fresh and frozen shucked shellfish shall be packed in nonreturnable packages identified with the name and address of the original shell stock shipper, shucker, packer, or repacker, and the official certificate number issued according to the law of the jurisdiction of its origin. Shell stock and shucked shellfish shall be kept in the container in which they were received until they are used.

b. Fish should be checked carefully. Refrozen fish shall not be used, that is, fish that have been frozen, thawed, and then refrozen again. Fish that have been refrozen may have soft, flabby flesh, a sour odor, and an off color. The wrapping paper may become moist, slimy, or discolored. The bottom of the box may be distorted.

c. Fresh fish has bright red gills, prominent clear eyes, and firm elastic flesh. Stale fish are dull in appearance, have cloudy and red-bordered eyes, and soft flesh; finger impressions are made easily and remain when digital pressure is released. Fish caught over the side at sea shall not be consumed unless there is absolute certainty that they are not poisonous, as cooking does not destroy the poisonous alkaloid found in some fish (such as barracuda), and violent illness and even death may result.

d. Fresh crustaceans (mollusk, lobster, crab, clams, etc.) must be alive to be accepted. Quality whole lobster cannot be obtained after any period of storage. They should be purchased as a live product and will remain satisfactory as long as they are alive and the flesh is not shrunken. When inspecting crab, lobster, or shrimp, the edible portion should be examined by organoleptical procedures to determine fitness for human consumption.

4. Inspection of Fruits and Vegetables. Inspection of fresh fruits and vegetables is based upon standards of the U.S. Department of Agriculture. Due allowances, however, are made for differences in these grades of standards, but minimum requirements are defined for the various grades. The following guidelines are reprinted from Food Service Practical Handbook, COMDTPUB P4061.4.

2-C-4. a. Fruits - Generally speaking, the choice of any particular fruit is influenced by appearance and quality. The following factors should be considered when inspecting fruits: Appearance (absence of blemishes), size and taste. Appearance is an indication of quality but must not be used as the sole standard in inspecting. Blemishes indicate poor quality or the beginning of decay. Larger fruit is usually more woody and coarse. Taste, however, is the best indicator of quality. Occasionally, fruits may have surface blemishes and the quality still may be high. Only by tasting can this quality be determined. Standards for inspecting fruits are applied in the following descriptions:

(1) Apples - The best grades of apples are firm, and have good color (bright and unspotted) and flavor. Immature apples have a poor color, lack flavor and shrivel after storage. Over ripe apples have a dull and extra-yellowish appearance and in advanced stages of over ripeness, wilt and begin to show decay. When apples have been severely injured by freezing or bruising, the skin appears brown and watersoaked and is often tough and leathery.

(2) Bananas - The color and condition of the peel are good indications of the use that should be made of bananas. When the skin is all yellow, the banana is firm enough and ripe enough to be eaten. If the peel is yellow but flecked with brown, the banana is fully ripe and should be used immediately. Fruit with a moldy skin that has turned black is of poor quality, although some bananas with a dark skin are very ripe but still good.

(3) Cantaloupe - There should be no trace of a stem at the blossom end of cantaloupes. If the netting covers the cantaloupe thickly and stands out like a whipcord, the melon is generally good. An apparent softness at the blossom end is no sure indication of maturity, as repeated pressure from handling will produce this condition. Fully ripe cantaloupes will have a delicate aroma. When shaken, an audible rattling of the seeds in the melon is another sign of maturity. The skin beneath the netting usually has a yellow tinge. Too deep a yellow indicates over ripeness.

2-C-4. a. (4) Cherries - High quality in cherries is denoted by plumpness with a bright appearance and good color. Immature cherries have a peculiar bitter tang and are undesirable. Cherries should be inspected for wormy fruit. Several cherries in each container should be cut because worm damage is not always apparent on the outside. Soft, over ripe, or shriveled fruit should be rejected.

(5) Grapefruit - Fine juicy grapefruits are well rounded in shape and heavy for their size. They are firm but springy to the touch, not soft, wilted, or flabby. A coarse skin, puffiness, or sponginess indicates lack of juice and taste. Fruits decayed in any degree are not desirable. Usually the flavor is affected. Decay sometimes appears as a soft, discolored area on the peel at the stem or button end of the fruit or it may appear as a water-soaked area with much of the natural yellow color within the area being lost and the peel being so soft that it breaks easily on pressure of a finger.

(6) Grapes - Color is a good guide to ripeness of grapes. The darker varieties should be free of a green tinge; white grapes should have a decided amber coloring. The fruit should be plump and each grape firmly fastened to the stem. Decay is indicated by wetness or the presence of mold.

(7) Honey Ball Melons - Prime quality honey ball melons have a thick, green-colored, sweet, fine-flavored flesh with a distinct pleasant aroma. The rind has a light-yellowish color and yields slightly to pressure. Decay is generally indicated by mold or dark, sunken, watery areas.

(8) Lemons - The best lemons have a greenish-yellow color with a smooth, fine-textured skin, and are heavy for their size. Mold or soft spots at the end indicate decay. If too springy, they may be decayed in the center.

(9) Nectarines - Nectarines look and taste like small peaches but they do not have "peach fuzz." They are red, white, or yellow fleshed in color and are chosen for their plumpness and firmness.

2-C-4. a. (10) Oranges - The skins of good oranges should be yellowish-orange, smooth, and fine textured. Avoid those that have badly creased skins or a puffy, spongy condition and are light in weight for their size. When inspecting for quality, be sure that the crate does not contain decayed fruit.

(11) Peaches - Quality in peaches is indicated by the general appearance and firmness of the flesh. They should be smooth skinned and well filled out. The color on the underside should be creamy white or yellow, blushed with red. Over ripeness is indicated by deeper reddish-brown color and softness of the fruit.

(12) Pears - Good quality pears are firm and shiny. Pears are packed and shipped green because they develop a fine flavor and smoother texture when ripened off the tree. They should be fully ripe for fresh use. If they are hard and unyielding to the touch at the time of receipt, allow them to stand at room temperature until the flesh responds readily to a gentle pressure of the hand. They are then in prime condition for eating.

(13) Pineapples - Fully ripe pineapples are slightly soft to the touch, golden yellow in color, and have a "piney" aroma. Fruit that is too green may not ripen well. Over-maturity is shown by slight decay at the base or on the sides by dark, soft, water spots.

(14) Plums - Good plums should be full colored and soft enough to yield to slight pressure. Some varieties are fully ripe when the color is yellowish-green, others when the color is purplish-blue or black. If hard, poor in color and flavor, the fruit is immature. Over ripe fruit is soft and usually leaky.

(15) Strawberries - Quality in strawberries is indicated by the general appearance. They should be firm, plump, and bright red in color. Over ripe strawberries are leaky, dull in color, and should not be used. Mold at the surface indicates decay.

(16) Tangerines - Tangerines are small, yellowish-red oranges with easily removable skins and loosely adhering sections. Quality is based mainly on weight for size and deep yellow or orange color of the skin.

2-C-4. a. (17) Watermelons - A fully ripe watermelon has a thin outer skin that peels easily when scraped with the fingernail. The underside changes from white to a yellow tinge with maturity. The safest way to determine watermelon quality is by "plugging".

b. Vegetables - Standard grades for vegetables have been developed by the U. S. Department of Agriculture, and military inspections are based on those standards. Because of their perishability, fresh vegetables must be handled with care. Do not pinch, squeeze, or handle them unnecessarily because bruising leads to decay and results in early spoilage.

(1) Asparagus - Asparagus stalks should be straight fresh appearing, crisp, and tender, with compact pointed ends and only one inch or so of tough woody base to remove.

(2) Beans - Green or waxy yellow (wax-beans) beans should have long, straight pods, crisp enough to snap easily. When the beans start to ridge and bulge the pods, they usually are old, tough, and leathery.

(3) Beets - Beets should be globular shaped with smooth, firm flesh. Medium-sized beets are less likely to be tough than very large ones.

(4) Broccoli - Broccoli should have plenty of green color in the heads as well as the leaves and stems. Stalks should be tender and firm with compact, dark green or purplish-green buds in the head.

(5) Brussels sprouts - Good brussels sprouts are hard, compact, and of an attractive green color. Puffiness wilted appearance, or yellow color indicate poor quality.

(6) Cabbage - Well-trimmed, solid heads which are heavy for their size and show no discolored veins are usually of good quality.

(7) Carrots - Carrots should be bright colored, well shaped, and medium sized. Poor color in carrots indicates poor quality. Wilted, flabby, soft, or shriveled carrots lack flavor.

(8) Cauliflower - A jacket of bright green denotes freshness. The head should be white or creamy white, clean, and solidly formed. If the flower clusters are spread or open, the vegetable will be of poor quality.

2-C-4. b. (9) Celery - Quality characteristics for both the bleached and the green celery are the same. Leaf stems or stalks should be brittle enough to snap easily and of medium length and thickness. The inside of the stem should be smooth. If it feels rough or puffy to the touch, the celery is likely to be pithy.

(10) Corn - Corn may be either white or yellow. The husk is a fresh green color, while the kernels are tender, milky, and sufficiently large to leave no space between the rows. Ears generally should be filled to the tips, with no rows of missing kernels.

(11) Cucumbers - The best cucumbers are firm in texture and bright green in color. Cucumbers of less than Seven (7) inches in length and about two (2) inches in diameter are best. Over-maturity is indicated by a generally overgrown puffy appearance. The color of over-mature cucumbers is generally dull and not infrequently yellow, the flesh is tough, seeds are hard, and the flesh in the seed cavity is almost jellylike.

(12) Eggplant - Purple eggplants should be of a clear, dark, glossy color that covers the entire surface. Heaviness and firmness of flesh are important. Choose pear-shaped eggplant from 3 to 6 inches in diameter. Decay shows up in dark brown spots. Wilted, soft, or flabby eggplants should be discarded.

(13) Endive - Curly endive grows in a bunched head with narrow, ragged-edged leaves which curl at the ends. The center of the head is a yellowish-white and has a mild taste while the dark green outer leaves have a bitter taste. Tough, coarse-leaved plants are undesirable. Toughness can be determined by breaking or twisting a leaf.

(14) Escarole - Escarole is a variety of endive. The leaves are broad and do not curl at the end. Crispness, freshness, and tenderness are the essential factors of quality.

(15) Garlic - Garlic, Dry, U.S. No. 1 Grade is the garlic authorized for use. Good quality garlic must be white or red skinned with firm, dry bulbs with no rotted spots or sprouting.

(16) Greens - Collards, kale, mustard, spinach, and turnip tops are the greens authorized for general mess use. Good quality greens must be fresh, young, green, and tender. Poorly developed, dry, or yellow leaves or insect-eaten leaves are not good. Coarse stems indicate poor quality.

2-C-4. b. (17) Lettuce - "Iceberg" lettuce is tightly headed lettuce, medium green on the outside with a very pale green heart. Discolored areas on the leaves indicate decay. Soft rot sometimes penetrates to the center of the head.

(18) Onions - Spanish and American types of onions, both grown in the United States, are used by the military. Dry onions should be bright, clean, hard, well shaped, and dark skinned. Moisture around the neck indicates decay.

(19) Onions, green - Green onions should be fresh in appearance, should have fresh green tops and medium-sized necks which are blanched for at least 2 or 3 inches from the root, and young, crisp, and tender. Bruised, yellow, wilted tops indicate poor quality and may indicate poor quality necks. The condition can be ascertained by puncturing with the thumbnail.

(20) Parsnips - Young parsnips, 1 1/2 to 2 inches thick and free from rust spots, are the best. Withered parsnips are old, tough, and have a strong flavor.

(21) Peppers - Peppers should be well shaped, thick walled, and firm, with a uniform glossy color. Pale color and soft seeds are signs of immaturity, while sunken, blister-like spots on the surface indicate that decay may set in rather quickly.

(22) Potatoes - Good quality white potatoes are generally clean, firm, and free from cuts, growth cracks, and other knobs or surface defects. Frost damaged potatoes generally have a watery appearance or show a black ring near the surface when cut across.

(23) Sweet Potatoes - Thick, chunky, medium-sized sweet potatoes which taper toward the end are the best. Avoid those with any sign of decay, as such deterioration spreads rapidly, affecting the taste of the entire potato, even in portions not immediately adjacent to the decayed area.

(24) Radishes - Good quality is indicated by the root which should be smooth, crisp, and firm, never soft or spongy.

(25) Rhubarb - Fresh, large, crisp, and straight stalks of red or cherry color are best. Condition of the leaves is a reliable guide in judging the freshness.

2-C-4. b. (26) Rutabagas - Good quality rutabagas should be smooth skinned, firm, and heavy for their size.

(27) Squash - Avoid hard rinds on the following: buttercup-shaped somewhat drum-like with sides slightly tapered near the apex, zucchini-cylindrical straight, with fairly square ends, skin color moderately dark green over a ground color of pale yellow, yellow straight-necked or crooked-necked very brilliant light yellow color. Hard tough rinds are desirable, however, on the following as soft rinds are apt to have a watery flesh which is flat to the taste: acorn-shaped and very dull, blackish-green with dull orange interior; Hubbard - medium to large size best.

(28) Tomatoes - Tomatoes should be firm, plump, fairly well formed, of good color (green out of season and bright red in season), and free from blemishes. The tomato is one of the most tender products and must be handled with care. Misshapen, angular, ribbed, or scarred tomatoes are of poor quality.

(29) Turnips - Smooth skin, firmness, and heavy for size are indications of good quality.

5. <u>Inspection of Canned Products</u>.

a. Canned products shall have intact readable labels.

b. When inspecting canned products, such as meats, fish, poultry, vegetables, fruits, and juices, the following should be taken into consideration:

(1) Can Labels - The information stamped on the end of each can shall be checked to ensure that contents and date of pack are indicated.

(2) Can Exterior - The exterior of the can shall be examined for general appearance, dents, swelling, rust, and pinholes. Dents, unless so severe as to cause leakage, do not indicate that the contents are in an unsatisfactory condition. However, if the dent is on the seam or so severe as to cause two metal planes to touch, the can should be discarded. Rust does not injure the food unless it penetrates the can. Pinholes are found only by careful inspection.

(3) Can Interior - The contents shall be removed and the inside of a sample can checked very carefully.

2-C-5. b. (4) Contents of Can - Odor and taste indicate the condition of the food. Fading of color, loss of flavor, and softening of contents are due to chemical action and natural aging processes. Discoloration is another defect caused by a chemical action found usually in products containing sulphur compounds, such as corn, peas, and meat products.

c. Except for coffee and molasses, which are discussed under "springer", foods contained in the following types of cans are unsatisfactory and shall be surveyed, and discharged.

(1) Pinholes - Cans with tiny holes caused by the action of acid.

(2) Swells or Swellers - Both ends of the can bulge out and remain that way. The condition is caused by action of bacteria (microorganisms) in the foods which result in the freeing of a gas (hydrogen sulfide). This gas cannot escape and gains room only by bulging out the ends of the can. Molasses is an exception. Cans of molasses that bulge at the ends are not unusual, particularly in tropical climates. This condition is normal and should not be grounds for rejection. Microorganisms cannot exist and multiply in an environment so high in sugar content.

(3) Springers - The ends of these cans are also bulged out, but they will yield to pressure of the fingers or thumb. When the pressure is relieved, the ends bulge out again. This condition may be caused by over-filling the can or by chemical or bacterial action on the food freeing gas which causes the swelling condition. Coffee is an exception. Care must be taken NOT to reject cans of roasted and ground coffee showing swell or springer characteristics. Swellers that develop in coffee are usually an indication of a properly sealed container that has retained its natural gases. The gas expands, replacing the original vacuum created in the can. When coffee in a sweller or springer can is of uncertain quality, report it to the food service officer.

2-C-5. c. (4) Flippers - This term describes a can, the ends of which are flat. However, one end may be forced into a convex condition when the other end of the can is brought down sharply on a flat surface. It indicates a loss of vacuum in the can from formulation of gas by bacteria or by chemical action on the metal of the can. Regardless of the cause the contents shall not be used.

6. Inspection of Dry Food Items.

a. Dry food items, other than canned goods, are such foods as cereals, sugar dried fruits, vegetables, flour, and meal. They must be stored under controlled conditions of temperature, humidity, and air circulation.

b. When inspecting dry food items, it should be remembered that U.S. Department of Agriculture standards were followed at the time of packaging. Outward appearance of the food or food containers and condition of the food itself are items to observe on inspection. For example, flour and meal bags may have been torn and the food exposed to insects or rodents. Rolled oats or other cereal containers may have been broken and the food contaminated. Dried vegetables may be damp and moldy.

c. Insects such as cockroaches are regularly transported from one area to another in such items as bags of potatoes and onions, and cans and cartons of dry stores. Dockside inspection of these items prior to taking them aboard is recommended to avoid recurring infestation in shipboard storage areas.

7. Inspection of Butter, Cheese, and Eggs. Butter, cheese, and eggs spoil quickly under improper storage conditions. The method of handling and the storage temperature must be correct. It is necessary that these products be checked carefully upon delivery, and frequently thereafter until consumed.

a. Butter - Butter should be received in clean, unbroken cases. For quality, it is best to taste samples for sweetness and freshness. The color should be uniform and the texture firm. Specks or foreign substances should not be present.

b. Cheese - The rind, color, flavor, and texture of cheese should be checked. Cheese may be received in either natural or processed form. The rind should be clean and free from mold or wrinkles. The color should be evenly distributed through good cheddar cheese. This can be determined by holding a thin slice in front of a light. The flavor of good cheese is clean and "nutty" and the texture compact and solid. The surface of the cheese should not contain breaks or holes.

2-C-7. c. Eggs - Only shell (fresh), frozen, and dehydrated eggs shall be procured to meet the various conditions, temperatures, and uses. Shell eggs not over thirty (30) days old, which have been held at a temperature of 45° (7.2° C) or below (do not freeze) in a dry, ventilated pace are preferred. Shell eggs shall be clean, have the shell intact and have no cracks. Eggs stored at room temperature or allowed to remain at room temperature rapidly lose their quality.

8. Inspection of Milk and Milk Products.

a. The perishability of milk and milk products is a most important factor, thus strict compliance with all sanitary requirements is mandatory. Of prime importance to medical and food service personnel are the maintenance of recommended temperatures in storage and dispensing and the enforcement of approved sanitary methods in the handling of milk or milk products.

b. Activities or ships may use several types of milk depending upon geographic location, weather, shipping facilities, storage space, refrigeration or freezer space, maintenance of equipment and personnel available. Types of pasteurized milk grouped according to recommended uses are:

(1) For beverage use:

(a) Milk, whole, fresh, homogenized

(b) Milk, skim and lowfat, homogenized

(c) Milk, frozen, homogenized

(d) Milk, concentrated, whole, or skim fresh or frozen

(e) Flavored milk (chocolate) and flavored dairy milk

(f) Milk, recombined

(g) Milk, whole, dry fat, instantized

(h) Milk, dry, nonfat, conventional style B

2-C-8. b. (1) (i) Milk, lowfat, shelf stable, 1, 1½, or 2 percent milkfat content, homogenized, fortified with protein, vitamins A and D added, ½ pint (8.000 fluid oz.) or 250 ml (8.453 fluid oz.), aseptically processed and packaged (UHT long shelf life), hermetically sealed in a foil laminated polyethylene coated flexible paperboard container, not more than 54 units per case.

(j) Milk, chocolate flavored, shelf stable, homogenized, vitamins A and D added, 1 quart (32.0 fluid oz.) or 1 liter (33.8 fluid oz.), aseptically processed and packaged (UHT long shelf life), hermetically sealed in a foil lamintated polyethylene coated flexible paperboard container, not more than 54 units per case.

(2) For baking and cooking use:

(a) Milk, Dry, nonfat, conventional style A, (recommended for bread baking)

(b) Milk, dry, nonfat, conventional style B

(c) Milk, evaporated, canned

c. When performing delivery inspections, medical department and supply personnel shall ensure that milk and milk products are from an approved source and delivered in containers which are in good condition and properly sealed.

d. Ensure that milk and milk products are organoleptically acceptable and that the temperature of the product on delivery is 45° F (7.2° C), or less.

e. Vehicles used in transportation of milk in its final delivery container, shall be constructed with permanent tops and sides, shall be clean, and its refrigeration maintained at 45°F (7.2° C), or less.

f. The use of block or crushed ice on top of milk containers for refrigeration or cooling during delivery or when on the service line is prohibited.

9. Suspect Food Items. All food items that are considered abnormal in appearance or odor shall never be EATEN, or EVEN TASTED, but shall be discarded in accordance with survey procedures outlined in COMDTINST M4061.3(series), Subsistence Manual. Where large quantities are involved, a representative package shall be submitted to a laboratory for bacteriological analysis.

2-D. Food Storage.

1. General.

a. Correct storage procedures play a major part in preventing food-borne illness. The maintenance of proper temperatures, air circulation, and humidity is necessary to preserve foodstuffs and prevent spoilage and subsequent growth of pathogenic organisms. High standards of sanitation shall be maintained in storerooms and refrigerated spaces.

b. Supply storage buildings shall be protected against insect and rodent invasion. Food items shall be placed on pallets to facilitate cleaning, to prevent insect and rodent harborage and to aid in air circulation and shall be stored with a regard to safety, accessibility, and orderliness. Age is a contributing factor in food spoilage. It is necessary to observe the basic principle of storage that oldest items shall always be used first, except when the condition of a newer item is such that it must be given priority.

c. Only food items shall be stored in food storage spaces (storerooms, reefers, refrigerators, etc.). Storage of non-food items such as medications, vaccines, batteries, glue, greases, urine samples, etc. in reefer spaces is prohibited.

d. Stored foods, whether raw or prepared, shall be enclosed in the clean container or package in which they were obtained or shall be enclosed in a clean covered container, except during necessary periods of preparation or service. Use of a cloth towel as a container cover is prohibited.

e. Food shall be stored six inches above the floor or deck on clean surfaces such as pallets, and protected so that the food items will not be contaminated by splash or other means.

f. Food items shall not be stored under exposed sewer or non-potable water lines.

g. Food not subject to further washing or cooking before serving shall be stored in a way that protects it against contamination from food requiring washing or cooking.

h. Packaged food shall not be stored in contact with water or undrained ice.

i. Unless its identity is unmistakable, bulk food not stored in the container or package in which it was obtained shall be stored in a container identifying the food by common name.

2-D-1. j. Decayed items shall be sorted out and removed from fresh fruits and vegetables. Food items such as eggs and butter which absorb odors should not be stored with fruits and vegetables.

2. Refrigerated Storage.

a. Enough conveniently located refrigeration facilities or effectively insulated facilities shall be provided to assure the maintenance of food at required temperatures during storage. Each cold food storage unit shall be provided with a numerically scaled indicating thermometer, accurate to plus or minus 3° F, and located in the warmest part of the facility to measure the air temperature. It should be mounted so that it can be easily read. Refrigerators and freezers shall be constructed in accordance with current National Sanitation Foundation (NSF) Standards and bear the NSF seal. Details are provided in NSF Standard Number Seven, Food Service Refrigeration and Storage Freezers. Refrigerators and freezers should be provided with thermometers mounted on the unit's exterior, and another placed inside the unit. Temperature logs shall be maintained on all cold storage spaces and accurate entries shall be made at least daily. Any deviations from recommended storage temperatures shall be reported immediately to the food service officer and the medical officer or the medical department representative.

b. The temperature of potentially hazardous foods requiring refrigeration shall be 40° F (4.4° C) or below except during necessary periods of preparation.

c. Frozen foods shall be kept frozen and shall be stored at a temperature of 0° F (-18° C) or below.

d. Ice not intended for human consumption shall not be used to cool stored foods, food containers, or food utensils.

e. There should be nothing stored in ice machines except ice.

f. All items shall be stored in such a manner as to provide for adequate air circulation. Storage on the deck of walk-in refrigerators or freezers is prohibited.

3. Hot Storage.

a. Enough conveniently located hot food storage facilities shall be provided to assure the maintenance of food at the required temperature during storage. Each hot food storage facility shall be provided with a numerically scaled indicating thermometer, accurate to plus or minus 3° F, located in the coolest part of the facility and located to be easily readable.

2-D-3. b. The temperature of potentially hazardous foods requiring hot storage shall not be less than 140° F (60° C) except during necessary periods of preparation.

4. Dry Food Storage.

a. Dry food items, other than canned goods, are such foods as cereals, dried fruits, vegetables, flour, and meal. They must be stored under controlled conditions of temperature, humidity, and air circulation.

b. All dry food items shall be stored above the floor, on clean racks, dollies, pallets, or other clean surfaces, in such a manner as to be protected from contamination by splash or other means.

c. When canned goods and dry food items are received they shall be inspected for correct can labeling, condition of exterior can, signs of rusting, and other conditions such as swellers, springers, and flippers.

d. Food items shall be stored away from bulkheads where steam or other heated pipes are located. Stacking should be in a manner to permit adequate air circulation.

E. Food Preparation.

1. General. Hand contact with food or drink should be minimized. Personnel must use disposable plastic gloves and non-absorbent materials such as waxed paper or utensils when handling foods that will not undergo further cooking. Gloves should be discarded and replaced whenever torn, punctured, or contaminated.

2. Cooking Potentially Hazardous Foods.

a. Potentially hazardous foods shall be prepared in accordance with Armed Forces Recipe Service instructions. Particular attention should be given to the following:

(1) Poultry, poultry stuffings, and stuffed meats shall be heated to at least 185° F (85° C) throughout without interruption of the cooking process.

(2) Pork and pork products shall be heated to at least 170° F (76.6° C) throughout.

(3) Ground beef and hamburger patties shall be thoroughly cooked, i.e., until no pink shows in the center.

2-E-2. b. Safe Holding Temperature for Cooked Foods.

(1) Potentially hazardous foods which are not served immediately after cooking shall be either rapidly chilled to temperatures of 40° F (4.4° C) or lower (but not frozen), or held at not less than 140° F (60° C).

(2) Growth of harmful bacteria and the development of toxins (poisons) formed by the bacteria occur rapidly in protein foods when held between temperatures of 40° F (4.4° C) and 140° F (60° C).

(3) Potentially hazardous foods which have been held at temperatures between 40° F (4.4° C) and 140° F (60° C) longer than three (3) hours shall be considered unsafe for consumption and shall be destroyed. If the product is refrigerated at intervals and then permitted to warm up, the total time of the various periods between 40° F (4.4° C) and 140° F (60° C) shall not exceed three (3) hours. Potentially hazardous foods composed of ingredients which have been peeled, sliced, or diced by hand after cooking shall never be used as leftovers, since the three (3) hour limit between temperature of 40° F (4.4° C) and 140° F (60° C) is usually taken up in preparing, chilling, and serving the food. These foods include potato salad, chicken salad, turkey salad, macaroni salad, shrimp salad, egg salad, and similar items. Hand preparation not only increases the chance of contamination but also increases the length of time that these are held at room temperature.

(4) It is also dangerous to return open jars or bowls of mayonnaise and cooked salad dressings from salad bars to refrigerators for reuse at a later meal. Therefore, mayonnaise and cooked salad dressings shall be placed on the salad bar in small quantities at a time and shall not be retained for reuse.

c. <u>Food to be Chilled</u>.

(1) When leftovers or warm foods are to be chilled, care shall be taken to assure prompt and thorough chilling (40° F [4.4° C] or below) to the center of the food mass. Foods to be refrigerated shall be placed in shallow pans to a depth of not more than three (3) inches and covered with lids, waxed paper or other appropriate coverings. Large, deep pans shall not be used, as the center of the food mass may remain warm for a sufficient time to permit growth of harmful bacteria or the development of toxins.

2-E-2. c. (1) (cont'd) Food to be chilled shall be placed in the chill box immediately and the containers labeled. The label shall contain the last date on which the food item can be safely consumed. Leftover food shall not be held for more than THIRTY-SIX (36) HOURS. FREEZING LEFTOVERS IS PROHIBITED.

(2) Commercially prepared fruit juices should be consumed after opening. Once the can is opened, the acid of the juice may leach the zinc and other coatings from the can and cause metal poisoning to develop. When juices are to be retained for periods longer than the meal for which they are intended, the remaining contents shall be transferred to suitable plastic or noncorrosive containers.

(3) Commercially prepared salad dressings such as Blue Cheese, French, Italian, Thousand Island, etc. shall be kept under refrigeration after opening if so indicated by the manufacturer.

d. Food to be Reheated. Potentially hazardous foods that are cooked and then refrigerated shall be rapidly heated to an internal temperature of 165° F (73.8° C) or higher throughout before being placed in a hot food storage facility. Steam tables, warmers and other hot food holding facilities are prohibited for the rapid heating of potentially hazardous foods.

3. Reconstitution. Non-dairy creaming agents shall not be reconstituted for consumption in quantities exceeding one gallon.

4. Product Thermometers. Metal stem-type numerically scaled indicating thermometers, accurate to plus or minus 3° F, shall be provided and used to assure attainment of proper internal cooking temperature of all potentially hazardous foods. They shall be sanitized between uses.

5. Thawing Potentially Hazardous Foods. Potentially hazardous foods shall be thawed in the following manner:

a. in refrigerated units so that the temperature of food does not exceed 40° F (4.4° C); or

b. in a microwave oven only when the food will be immediately transferred to conventional cooking facilities as part of a continuous cooking process or when the entire, uninterrupted cooking process takes place in the microwave oven; or

c. as part of the conventional cooking process.

2-E-6. Food Precautions. There are numerous precautions which shall be observed when preparing and serving food items. Some of these precautions are:

a. Raw Fruits and Raw Vegetables. Raw fruits and raw vegetables shall be washed thoroughly before being cooked or served.

b. Dry Egg Products. Reconstituted, dry eggs, and dry egg products shall be used only if they are heated to not less than 140 ^{o} F (60° C) before being served.

c. Shell Eggs. There is some risk in serving shell eggs lightly cooked, e.g., sunny-side-up, over easy, soft boiled and soft scrambled. This is due to the possibility of transmitting salmonella or other disease organisms. Eggs lightly cooked shall be individually cooked and at the request of the patron. Break no more than six eggs per holding bowl and use a clean sanitized bowl for each six eggs.

d. Uncooked Eggs. Recipes requiring uncooked eggs, e.g., mayonnaise, eggnog, ice cream, Caesar Salad Dressing and hollandaise sauce, shall be prepared using only pasteurized frozen eggs.

f. Raw Eggs. Serving raw eggs and foods containing raw eggs is prohibited.

g. Dry and Liquid Milk Products.

(1) Single-service containers of milk and liquid milk products shall be refrigerated at temperatures below 40° F (4.4^{o} C) until served. Tops of containers shall be clean and shall not be submerged in water or covered with ice for cooling purposes. Temperature in the dispenser cabinet shall be maintained within the range of 32° F (0° C) to 40° F (4.4^{o} C) while milk containers are stored within. A metal-stem type thermometer shall be an integral part of the dispenser cabinet.

(2) Multi-use dispenser tubes are prohibited. Single-service tubes (other than precut tubes) shall be cut with a clean cutting instrument at a point 1/4 inch beyond the termination of the dispensing mechanism and at a forty-five (45) degree angle.

(3) Milk contact surfaces shall not be exposed to manual contact, droplet infection, dust, flies, or other sources of contamination.

(4) Dispenser cabinets shall be defrosted at frequent intervals to prevent accumulation of more than three-sixteenth (3/16") inch of ice.

2-E-6. g. (5) Milk dispenser cabinets shall be used for no other purpose except for the storage of the bulk-milk containers during the meal time. DO NOT STORE bulk-milk containers in dispenser cabinets overnight.

(6) Dry milk products shall use only potable water when being reconstituted and shall be heated to not less than 140° F (60° C) before being refrigerated. Reconstituted milk left at the end of a meal period shall be used for cooking purposes or destroyed.

h. Ground Food.

(1) Food which has been ground or chopped and is to be cooked later or incorporated into a recipe shall be refrigerated to 40° F (4.4° C) or below immediately in shallow pans filled to a depth of not more than three (3) inches and shall be kept covered until cooked.

(2) Grinding or chopping food increases the surface area for possible contamination and growth of harmful bacteria. The grinding process also warms chilled food to the point where microbial growth may start. Only the quantity of ground food that will be consumed at each meal period shall be prepared.

(3) To assure a safe product, ground or chopped foods shall be prepared and cooked in accordance with the methods prescribed in the Armed Forces Recipe Service.

i. Meats. Cut, sliced, or diced meats shall be placed in shallow containers not more than three (3) inches deep, covered with lids, waxed paper, polyethylene film (plastic wrap, etc.) or other appropriate coverings and refrigerated immediately. Meat cutting and meat preparation rooms shall be air conditioned and maintained at temperatures of 50° F (10° C) or less. Improper handling of meats can result in souring as well as bacterial contamination.

j. Green Vegetables. Green vegetables of uncertain origin shall be suspected as being contaminated with pathogenic organisms and shall be chemically sanitized by immersion for at least fifteen (15) minutes in a 100 ppm available chlorine solution or thirty (30) minutes in a 50 ppm available chlorine solution and thoroughly rinsed with potable water before being cooked or served. Head items such as lettuce, cabbage, celery, etc., must be broken apart before sanitizing.

2-E-6. k. Frozen Foods.

(1) Frozen foods shall be thawed in a refrigerated spa

(2) Freezing tends to break down tissue cells, making the food much more susceptible to bacterial invasion after thawing. Frozen foods, once thawed, shall not be refrozen.

(3) Frozen foods shall not be thawed by exposure to excessive heat, except as a part of the conventional cooking process.

(4) Frozen foods shall not be thawed by total immersion in water.

(5) The use of fans to speed thawing causes loss of fluid through dehydration, and shall not be permitted. Frozen meat shall be thawed gradually under refrigeration and used as soon as possible thereafter. The ideal temperature range for thawing is 36° F (2.2° C) to 38° F (3.3° C). During the thawing period, meat shall be kept in the original commercial wrapping or container, which provides insulation and permits the meat to thaw uniformly.

l. Reconstituted, Dehydrated Foods. Food items such as dried eggs and vegetables are as susceptible to spoilage after reconstitution as are the fresh items. Dehydrated foods shall be cooked or refrigerated immediately following reconstitution.

m. Pastries.

(1) Cream puffs, custard-filled pies and cakes, eclairs, and similar products, including those containing synthetic fillings, shall be prepared under strict sanitary conditions, covered, cooled quickly, and refrigerated at 40° F (4.4° C) or below until served. They shall remain under refrigeration at 40° F (4.4° C) or below on the serving line and any leftover items shall be disposed of after each meal.

(2) When these items are procured commercially, they shall be delivered under refrigeration at 40° F (4.4° C) or below.

(3) These items are highly perishable and provide ideal culture media for pathogenic organisms. Only the quantity of food which will be consumed for the day shall be prepared or procured. To assure uniformity and safe products, foods shall be prepared and cooked in accordance with the methods prescribed in the Armed Forces Recipe Service, NAVSUP PUB 7, stock number 0530-LP-016-1010.

2-F. Food Display and Service.

1. Potentially Hazardous Foods. Potentially hazardous foods shall be kept between 40° F (4.4° C) or lower or not less than 140° F (60° C) during display and service.

2. Display Equipment. Food displayed on salad bars, steam tables, and other serving lines shall be protected from consumer contamination by easily cleanable counter-protector devices, such as "sneeze guards" and display cases. Enough utensils shall be provided to ensure elimination of cross contamination between foods.

3. Reuse of Tableware. Reuse of soiled tableware is prohibited.

4. Dispensing Utensils. Suitable utensils shall be used by employees and provided to consumers who serve themselves to avoid unnecessary contact with food. Between uses utensils shall be:

   a. stored in food containers with the food they are being used to serve in a position to ensure the handles will not come into contact with the food item, or

   b. stored clean and dry, or

   c. stored in running water; or

   d. in the case of utensils and ice cream scoops used in serving frozen desserts, they shall be stored either in running water, dipper wells, or clean and dry. At no time shall they be immersed in a pan or container of water and left at room temperature. Dippers immersed in water must have potable water continuing to flow to waste.

5. Ice Dispensing.

   a. Ice making machines shall be located, installed, operated, and maintained in a sanitary manner to prevent contamination. The machine shall be cleaned and inspected periodically by refrigeration personnel to ensure proper operation. The motor area and insulation panels shall be inspected weekly for evidence of cockroach infestation. Care shall be taken to ensure the absence of submerged nonpotable water inlets; airgaps in drains from potable water tanks shall be provided; overflow pipes shall be provided for defrosting tanks to prevent contamination of the ice with water used for defrosting; sanitary racks or stowage shall be provided for hoses or lines used to fill freezing trays. Rules of sanitary conduct for personnel manufacturing or handling ice shall also be provided by the supervisor of food service establishment or other designated personnel.

2-F-5. b. Ice for consumer use shall be dispensed only with scoops, tongs, or other ice dispensing utensils or through automatic self-service ice dispensing equipment. Between uses, ice dispensing utensils and ice receptacles shall be stored in a way that protects them from contamination. Dispensing utensils shall not be stored in ice making machines.

6. Condiment Dispensing. Sugar, condiments, seasonings, and dressings for self-service use shall be provided only in individual packages or from dispensers that protect their contents. If condiments containing high protein ingredients are dispensed in other than individual packages, they shall be protected from contamination and be held at temperatures below 40° F (4.4° C). They shall be placed on the line in small amounts and replenished frequently. Any portion remaining at the end of a meal period will be disposed of as garbage.

7. Milk Dispensing.

a. Single-service containers of milk and liquid milk products shall be refrigerated at temperatures below 40° F (4.4° C) until served. Tops of containers shall be clean and shall not be submerged in water or covered with ice for cooling purposes. All milk and milk products dispensed from bulk milk shall be homogenized. Temperature in the dispenser cabinet shall be maintained within the range of 32° F (0° C) to 40° F (4.4° C) while milk containers are stored within. A thermometer shall be an integral part of the dispenser cabinet.

b. Milk and milk products for drinking shall be provided to the consumer in unopened, commercially filled packages not exceeding one (1) pint in capacity, or served from a bulk milk dispenser.

c. When the pitcher method of milk reconstitution is used, care shall be taken to ensure that pitchers have been cleaned and sanitized prior to use. Long handled, corrosion-resistant spoons or electric beaters used for reconstituting shall also be cleaned and sanitized prior to use. Pitchers are allowed only for serving of reconstituted milk.

8. Re-service. Once served to a consumer, individual portions of food shall not be served again. Packaged food, other than potentially hazardous food, that is still wholesome, may be reserved.

2-G. <u>Food Transportation</u>.

1. During transportation, food shall be in covered containers, or completely wrapped or packaged so as to be protected from contamination.

2. During transportation to another location for serving or catering operations, food shall meet the requirements of this chapter relating to stored foods.

3. All potentially hazardous foods shall be maintained at 40° F (4.4° C) or below, or not less than 140° F (60° C) during transportation.

CHAPTER 3 - FOOD SERVICE PERSONNEL

A. Introduction.

1. Food service personnel are a most important link in the transmission of food-borne illnesses. The health and personal habits of food service personnel, in addition to preparing and serving foods, are vital factors. These factors affect not only food service personnel, but also the health and well-being of their patrons.

2. The practice of good personal hygiene and the application of recommended food service techniques are essential in preventing food contamination which may result in food-borne illnesses. Food service personnel, both military and civilian, shall receive formal training before assignment to duty in a food service establishment. Civilian contractors are responsible for ensuring that their personnel are properly trained following Coast Guard training guidance of Chapter 12 provided in this manual.

3. Food service personnel (such as messcook, scullery, and wardroom personnel) shall be selected on a basis of good health habits and cleanliness and not haphazardly assigned.

B. Health Standards.

1. All food service personnel, military and civil service (independent contractors are responsible for their employees) shall be screened by a medical department representative and determined to be free from communicable disease prior to initial assignment in food service areas. Additionally, a medical history shall be taken. The screening shall be recorded on an SF-600, Chronological Record of Medical Care.

2. The screening will specifically be designed to check for communicable diseases with potential transmission through food preparation and serving. There are NO mandatory laboratory tests to be accomplished as part of the screening. As general guidelines: (1) attention to and comment on adequacy of personal hygiene (boils, infected wounds, open sores on hands may be disqualifying until resolved) is required on all examinations; (2) fecal examination for ova and parasites will be done only if indicated by history or findings; and (3) PPD is required on initial placement of civilian personnel. Since PPD is required for active duty personnel quadrennially, it need not be repeated unless indicated by history or findings.

3. Health records shall be reviewed to ensure that all required immunizations are up to date.

3-B-4. Food service personnel having open or draining lesions (especially of the hands, face, or neck, or severe pustular acne of the face) must be evaluated by a medical department representative and a decision to prohibit or limit food service duties must be made on a case-by-case basis. Decisions to prohibit or limit food service duties should consider the location and type of lesion, amount of drainage, current therapy, and ability to cover the lesion, in addition to the food service duties the person performs.

5. Food service personnel who have been away from their duties for any length of time for illness involving gastrointestinal symptoms (i.e., vomiting, diarrhea, etc.), hepatitis, strep throat, or skin infection must be screened by a medical department representative prior to the resumption of their food service duties.

6. Food service personnel who exhibit any symptoms of a communicable disease or other illness shall be referred to the medical department (civilian practitioners, as appropriate, for contract workers) for evaluation. It is the responsibility of the member, his/her supervisor, the food service officer, and responsible medical department representatives to ensure that all personnel involved in food preparation and/or serving are free of illness with potential for foodborne transmission.

C. Personnel Inspections.

1. Daily hygiene inspections of food service personnel shall be conducted by the food service officer and/or other personnel designated by the commanding officer. Medical department representatives will inspect food service personnel during their inspections of the galley.

2. Inspection of food service personnel shall ensure the following:

a. Uniforms clean and neat.

b. Hair properly trimmed and clean.

c. Moustaches (if worn) shall be neatly trimmed.

d. Hands clean with fingernails clean, unpolished and neatly trimmed.

e. No open lesions on the face, neck, arms, and hands, except for minor cuts and abrasions.

f. No obvious symptoms of upper respiratory infections.

3-D. Personal Cleanliness.

1. General.

a. Food service personnel shall thoroughly wash their hands and the exposed portion of their arms with soap and warm water:

(1) Before starting work,

(2) During work as often as necessary to keep them clean;

(3) After smoking,

(4) After eating,

(5) After drinking, and

(6) After using toilet facilities.

b. Food service personnel shall keep their hands clean and shall keep their fingernails clean, unpolished and neatly trimmed.

c. All male food service personnel working in food preparation, storage, and utensil cleaning spaces shall conform with the following grooming standards:

(1) If an individual chooses to wear sideburns, they will be neatly trimmed. Sideburns will not extend below the bottom of the earlobe, will be of even width (not flared) and will end with a clean-shaven horizontal line. "Muttonchops", "Ship's Captain" or similar grooming modes are considered to be merely elongated sideburns and thus are not authorized.

(2) For sanitary reasons, all food service personnel shall remain CLEAN-SHAVEN, except that they may wear a neatly trimmed moustache. Beards of any kind or shape are PROHIBITED.

d. All female food service personnel working in food preparation storage, and utensil cleaning spaces shall conform with the following grooming standards:

(1) Hair will be clean and neatly arranged. In no case shall the bulk of the hair interfere with the proper wearing of sanitary headgear.

(2) Hair ornaments such as ribbons will not be worn. Pins, combs, or barrettes similar in color to the individual's hair color may be worn but must not interfere with wearing of headgear.

3-D-1. d. (3) Hairpieces or wigs, if worn, shall not interfere with the proper performance of food service duties and shall not present a safety hazard.

e. Food service personnel, military and civilian, shall use effective hair restraints as properly worn hats and hair nets to prevent contamination of food and food contact surfaces.

2. Clothing.

a. All clothing worn by food service personnel shall be neat and clean.

b. Active Duty Coast Guard food service personnel shall wear whites or Coast Guard blue working uniform.

c. Food service personnel shall wear a white bib apron and a white sanitary disposable hat.

d. Food service personnel shall wear shoes with steel safety toes.

e. The outer clothing of all food service personnel shall be clean and shall not be worn outside of the food service establishment.

f. Clothing intended to be used once and then discarded is permissible. All other clothing shall be washable.

g. Civilian clothing shall not be kept in food preparation areas, serving areas, and utensil washing areas. Also food service personnel shall not use these same areas for changing their clothes.

E. Health Practices.

1. Food service personnel shall consume food only in designated dining areas. An area shall not be designated as a dining area if consuming food or beverages there might result in contamination of other food, equipment, utensils, or other items needing protection.

2. Personnel shall not use tobacco in any form while engaged in food preparation or service, nor while in equipment or utensil washing areas. Food service personnel may use tobacco and tobacco products only in designated areas. Refer to Commandant Instruction 6280.1(series), Smoking in Coast Guard Facilities, for further information.

3-E-3. Food service personnel shall handle soiled tableware in a way that will reduce contamination of their hands.

4. Food service personnel shall maintain a high degree of personal cleanliness and shall conform to proper hygienic practices.

5. Food service personnel shall not store personal items, such as books, medications, magazines, combs, clothing etc., in any food service preparation or serving areas, storage, or utensil cleaning spaces.

6. Food service personnel shall not handle money and prepare or serve food as one delegated function.

7. Food and/or beverages shall not be consumed in food preparation or scullery areas.

F. Training and Safety Practices.

1. Injuries and health impairments can be kept to a minimum through the use of proper training and safety precautions. Most accidents which occur in food service establishments can be prevented if the full cooperation of food service personnel is gained and vigilance is exercised to eliminate unsafe conditions and unsafe acts. All food service establishments are required to conduct effective and continuous training and prevention programs. The commanding officer is responsible for administration of the food service training and safety programs.

2. Educating Personnel.

a. The commanding officer shall ensure that all food service personnel are indoctrinated in the principles of safety and sanitation, and that a continuing and effective training program is carried out. Food service personnel shall be thoroughly indoctrinated in personal hygiene, as well as in the methods and importance of preventing food-borne illnesses. Temporary food service personnel shall also be indoctrinated as they are assigned to food service duties.

b. Written instructions for equipment operation and standing sanitary rules shall be posted in conspicuous places. Handwashing posters (Forms CG-3525, CG-3526, and CG-3527) shall be posted in heads and other appropriate places. Handwashing posters can be procured from Coast Guard Supply Center by completing a Multi-use Standard Requisitioning/Issue System Document (SF-344).

3-F-2. b. (1) CG-3525 - Poster, Sanitation, Man Washing Hands - "Always Wash Your Hands After Using The Toilet", SN 7530-00-F01-4600, U/I EA. See Figure 3-1.

(2) CG-3526 - Poster, Sanitation, Five Hands - "Always Wash Your Hands After Using Toilet", SN 7530-00-F01-4610, U/I EA. See Figure 3-2.

(3) CG-3527 - Poster, Sanitation, Hand Turning Faucet - "Always Wash Your Hands After Using Toilet", SN 7530-00-F01-4620, U/I EA. See Figure 3-3.

(4) SF-344 - Multiuse Standard Requisitioning/Issue System Document, SN 7540-00-965-2379, U/I (PD).

3. Enclosure (1) contains a listing of some food service safety precautions which should be used by food service personnel while they are engaged in the preparation and serving of foods, and the cleaning of food service establishments.

FIGURE 3-1

Do not handle food if you have infected cuts or sores or if you have an intestinal disease
Always wash your hands after using the toilet
UNITED STATES COAST GUARD
DEPARTMENT OF TRANSPORTATION, U.S. COAST GUARD, CG-3828 (REV. 4-67)
GPO 945-592

FIGURE 3-2

Do not handle food if you have infected cuts or sores or if you have an intestinal disease

UNITED STATES COAST GUARD

DEPARTMENT OF TRANSPORTATION U.S. COAST GUARD CG-3526 REV. 4-67

GPO 945-422

FIGURE 3-3

Do not handle food if you have infected cuts or sores or if you have an intestinal disease
ALWAYS WASH YOUR HANDS AFTER USING THE TOILET
UNITED STATES COAST GUARD
DEPT. OF TRANSPORTATION CG 3527 (REV 4-67)

CHAPTER 4 - EQUIPMENT AND UTENSILS

A. Materials.

1. General. All equipment and utensils used in food service facilities shall be made of sanitary, nontoxic, corrosion-resistant materials and so designed, constructed, and installed as to provide for ease of cleaning. Sanitary standards for the equipment shall not be less than those promulgated by the National Sanitation Foundation (NSF).

2. Solder. If soft solder or hard solder (silver solder) is used, it shall be composed of nonlead materials and shall be corrosion resistant.

3. Wood. Wood blocks and cutting boards shall not be used and shall be removed from all food service areas. This particular material has long been a problem due to cracks and general lack of attention. Only plastic or hard rubber cutting blocks shall be used in food service areas. Where wood is presently being used, it shall be replaced with the hard rubber, nylon, or plastic cutting boards.

4. Plastics. Only plastic, rubber, or rubber-like materials that are safe, resistant to scratching, scoring, decomposition, crazing, chipping, and distortion under normal conditions of use shall be used in food service establishments. They shall be of sufficient weight and thickness to permit cleaning and sanitization by normal machine dishwashing methods, and shall meet the general requirements set forth in subparagraph 4-A-1.a. The use of equipment and utensils made of materials not meeting the requirements of this chapter is prohibited. They should be replaced as soon as it is evident that significant scratching of the surface is taking place.

5. Mollusk Shells. Mollusk and crustacean shells shall be used only once as a food container and then discarded.

B. Design and Fabrication.

1. General.

a. All equipment and utensils including plasticware, shall be designed and fabricated for durability under conditions of normal use and shall be resistant to denting, buckling, pitting, chipping, and crazing. Food contact surfaces shall be easily cleanable, smooth, and free of breaks, open seams, cracks, chips, pits, and similar imperfections. They shall be free of difficult-to-clean corners and crevices. Cast iron may be used as a food contact surface only if the

4-B-1. a. (cont'd) surface is heated, such as grills and skillets. Threads shall be designed to facilitate cleaning, ordinary "V" type threads are prohibited.

b. All equipment must bear the seal of the National Sanitation Foundation and meet the following criteria:

(1) Corners formed in equipment manufacture and installation, such as flashings, jointures, closure plates and sheathing must be rounded with all exposed surfaces accessible for cleaning.

(2) Jointures must be tight. Fasteners must be easy to clean and free from snags.

c. Equipment containing bearings and gears requiring unsafe lubricants shall be designed and constructed so that the lubricant cannot leak, drip, or be forced onto food contact surfaces. Only safe nontoxic lubricants shall be used on equipment designed to receive lubrication of bearings on or within food contact surfaces.

d. Sinks, dish tables, and drain boards shall be self-draining.

e. Provisions must be made above cooking equipment, food serving equipment, and food preparation surfaces to prevent condensate or other foreign matter from dropping on equipment or food.

2. Accessibility. Unless designed for in-place cleaning, food contact surfaces shall be accessible for cleaning and inspection:

a. Without being disassembled, or,

b. By disassembling without the use of tools; or,

c. By easy disassembling with the use of only simple tools kept available near the equipment, such as a mallet, a screwdriver, or an open-end wrench.

3. In-Place Cleaning. Pipes, tubes, valves, and lines contacting food and intended for in-place cleaning shall be so designed and fabricated that;

a. Cleaning and sanitizing solutions can be circulated throughout a fixed system using an effective cleaning and sanitizing regime; and,

b. Cleaning and sanitizing solutions will contact all interior food-contact surfaces; and,

c. The system is self-draining or capable of being completely evacuated.

4-B-4. Thermometers. Thermometers required for immersion into food or cooking media shall be of metal stem-type construction, numerically scaled, accurate to plus or minus 3° F., and sanitized between uses.

5. Non-Food Contact Surfaces. Surfaces of equipment not intended for contact with food, but which are exposed to splash or food debris or which otherwise require frequent cleaning shall be designed and fabricated so as to be smooth, non-porous, washable, and free of unnecessary ledges, projections, or crevices. They shall be readily accessible for cleaning, and shall be of such material and in such repair as to be easily maintained in a clean and sanitary condition.

6. Ventilation Hoods. All ventilation devices and hoods shall be designed to prevent grease or condensate from dripping into food or onto food contact surfaces. All ventilation systems shall be designed in accordance with the requirements of the Civil Engineering Manual (COMDTINST M1100.1(series)).

C. Equipment Installation and Location.

1. General. Equipment and utensils shall be so constructed as to be easily maintained in a state of good repair. Food service personnel cannot be expected to maintain proper sanitary standards if equipment or utensils are not easily cleanable because of improper construction or deteriorated condition, or if special or unusual dismantling tools are required, or if the labor required is excessively tedious, heavy, or time-consuming. The foregoing undesirable features of equipment and utensils can be avoided or eliminated if sanitation factors are considered at the time purchases are made, or when the specifications are written, or before the equipment is installed.

2. Ice Machines. Ice machines and ice storage equipment shall not be located under exposed sewer lines, non-potable water lines, stairwells, or other sources of potential contamination.

3. Table Mounted Equipment. Equipment that is placed on tables or counters, unless portable, shall be sealed to the table or counter or mounted on legs at least four (4) inches high and shall be installed to facilitate cleaning the equipment and adjacent areas.

4. Portable Equipment. Equipment is not portable within the meaning of paragraph (1) in this chapter unless:

a. It is small and light enough to be moved easily by one person; and,

4-C-4. b. It has no utility connection, or has a utility connection that disconnects quickly, or has flexible utility lines of sufficient length to permit the equipment to be moved for easy cleaning.

c. Equipment with gas utility connections are not considered portable.

5. Floor Mounted Equipment. Floor mounted equipment, unless easily moveable shall be:

a. Sealed to the floor; or,

b. Installed on a raised platform of concrete or other smooth masonry in a way that prevents liquids or debris from seeping or settling underneath, between, or behind equipment in spaces that are not.

c. Elevated on legs at least six (6) inches off the floor, except that vertically mounted floor mixers may be elevated as little as four (4) inches off the floor if no part of the floor under the mixer is more than six (6) inches from cleaning access; or,

d. Unless sufficient space is provided for easy cleaning between and behind each unit of floor mounted equipment, the space between it and adjoining equipment units and between it and adjacent walls shall be closed or, if exposed to seepage, the equipment shall be sealed to the adjoining equipment or adjacent walls. Where possible, equipment should be six (6) inches (shipboard) and nine (9) inches (shore units) away from adjacent equipment and walls.

6. Aisles and Working Spaces. Aisles and working spaces between units of equipment and between equipment and walls shall be unobstructed and of sufficient width to permit employees to perform the duties readily and without contamination of food or food contact surfaces by clothing or personal contact.

CHAPTER 5. CLEANING, SANITIZATION AND STORAGE OF EQUIPMENT, UTENSILS, AND CLEANING GEAR

A. Equipment and Utensils Cleaning and Sanitization.

1. Cleaning Frequency.

a. Tableware shall be cleaned and sanitized after each use.

b. Kitchenware and food contact surfaces of equipment shall be cleaned and sanitized after each use and following any interruption of operations when contamination may have occurred.

c. Where equipment and utensils are used for the preparation of potentially hazardous foods on a continuous or production line basis, utensils and the food contact surfaces of equipment shall be cleaned and sanitized at various intervals throughout the day as deemed necessary by the food service supervisor. This cleaning shall be based on food temperature, type, and amount of particle accumulation.

d. The food contact surfaces of grills, griddles, and similar cooking devices and the cavities of microwave ovens shall be cleaned after each use and shall be kept free of encrusted grease deposits and other accumulated soil.

e. Tables and tableware shall be cleaned after each meal and thoroughly scrubbed after the evening meal to remove all residues of food.

f. All galley equipment shall be cleaned and sanitized thoroughly after each meal. This includes slicing machines, mixers, can openers, milk machines, toasters, etc.

g. The exterior of all condiment dispensers (sugar, spices, salt, and pepper) shall be cleaned after each meal.

h. When inspecting refrigerated storage spaces, the following guidelines should be used:

(1) Any accumulation of frost on refrigerator coils and units shall be observed. A thick layer of frost or ice will reduce the efficiency of the system and may result in overloading the compressors. Defrosting shall be done before frost thickness reaches one-fourth (1/4) of an inch.

5-A-1. h. (2) Non frost-free refrigerators and freezer spaces shall be frequently defrosted and all shall be cleaned at regular intervals or as operations permit. After having been defrosted according to operating instructions, they shall be scrubbed and washed thoroughly with hot detergent solution, rinsed and all surfaces sanitized.

2. Wiping Cloths and Sponges.

a. Only disposable cloths may be used for wiping food spills from food contact surfaces. These cloths shall be clean and used for no other purpose. When odors or soil cannot be removed from the cloths, they shall be discarded. Between uses these wiping cloths shall be kept in one of the sanitizing solutions listed in the Cleaning and Sanitizing Section of this Chapter.

b. Wiping cloths used for wiping non-food contact surfaces shall be clean and used for no other purpose. Betweeen uses these wiping cloths shall be kept in one of the sanitizing solutions listed in the Cleaning and Sanitizing Section of this Chapter.

c. Sponges shall not be used in food service areas.

3. Manual Cleaning and Sanitizing.

a. Sinks shall be cleaned prior to each use. Equipment and utensils shall be preflushed or prescraped and, when necessary, presoaked to remove gross food particles and soil. Equipment and utensils shall be thoroughly washed in a hot detergent solution that is kept clean and then shall be rinsed free of detergent and abrasives.

b. Enclosure (2) contains a list of tables giving amount of each stock solution or chlorine compound to be added to water to produce an initial chlorine concentration of 1, 2, 5, 50 and 100 parts per million (ppm).

c. All tableware and the food contact surfaces of all other equipment and utensils shall be sanitized by:

(1) Immersion for at least thirty (30) seconds in clean, hot water at a temperature of at least 170° F (76.6° C); or,

(2) Immersion for at least one (1) minute in a clean solution containing at least 200 ppm of available chlorine and having a temperature of at least 75° F (23.8° C); or,

5-A-3. c. (3) Immersion for at least one (1) minute in a clean solution containing at least 12.5 ppm of available iodine and having a pH not higher than 5.0 and having a temperature of at least 75° F (23.8° C); or,

(4) Treatment with steam, in the case of equipment too large to sanitize by immersion. This steam shall be free from materials or additives other than those specified by the Food and Drug Administration; or

(5) Rinsing, spraying, or swabbing with a chemical sanitizing solution of at least twice the usual recommended strength in the case of equipment too large to sanitize by immersion.

d. When chemicals are used for sanitization, they shall not have concentrations higher than the maximum permitted by the Food and Drug Administration. A test kit or other device that accurately measures the ppm and the pH concentration of the solutions shall be provided and used.

e. A three compartment sink shall be used if cleaning and sanitization of equipment is done manually. Sinks shall be large enough to permit the complete immersion of the equipment and utensils, and each compartment of the sink shall be supplied with hot and cold potable running water.

f. Dish tables or drain boards of adequate size shall be provided for proper handling of soiled utensils prior to washing and for clean utensils following sanitizing. They shall be located so as not to interfere with the proper use of the dishwashing facilities.

g. When hot water is used for sanitizing, the following facilities shall be provided and used:

(1) An integral heating device or fixture installed in or under the sanitizing compartment of the sink, capable of maintaining the water at a temperature of at least 170° F (76.6° C) and,

(2) A numerically scaled indicating thermometer accurate to plus or minus 3° F convenient to the sink to be used for frequent checks of the water temperature; and,

(3) Dish baskets of such size and design to permit complete immersion of the tableware, kitchenware, and equipment in the hot water.

5-A-4. Mechanical Cleaning and Sanitizing.

a. Cleaning and sanitizing may be done by spray-type or immersion dishwashing machines or by any other type of machine or device that thoroughly cleans and sanitizes equipment and utensils. Such machines and devices shall be properly installed and maintained in good repair. Automatic detergent dispensers and wetting agent dispensers, if any, shall be properly installed and maintained.

b. The pressure of water supplied to spray-type dishwashing machines shall not be less than 15 nor more than 25 pounds per square inch (psi) on the water line at the machines and not less than ten (10) pounds (psi) at the rinse nozzle. A one-fourth (1/4) inch IPS valve and gauge shall be provided immediately upstream from the final rinse control valve to permit checking the flow pressure of the final rinse water.

c. Easily readable, numerically scaled indicating thermometers accurate to plus or minus 3 degrees F. shall be provided to indicate the temperature of the water in each tank of the machine and the temperature of the rinse water as it enters the manifold.

d. Rinse water tanks shall be protected by baffles or other effective means to minimize the entry of wash water into the rinse water. Conveyors in washing machines shall be accurately timed to assure proper exposure times in wash and rinse cycles as determined by specifications attached to the machines.

e. Drain boards shall be of adequate size for the proper handling of soiled utensils prior to washing and for clean utensils following sanitization. They shall be located and constructed not to interfere with the proper use of the dishwashing facilities.

f. Equipment and utensils shall be flushed or scraped and, when necessary, soaked to remove gross food particles and soil prior to their being cleaned in a dishwashing machine. After flushing, scraping, and soaking, equipment and utensils shall be placed in racks, trays, baskets, or on conveyors. They shall be placed so that food contact surfaces are subject to unobstructed application of detergent wash and clean rinse waters and to permit free draining. Clean rinse water shall remove particulate detergent residues. All dishwashing machines shall be thoroughly cleaned following each washing period.

g. Booster heaters, if required, must be installed in accordance with the manufacturers directions.

5-A-5. Machines Using Hot Water Sanitizing.

a. Wash waters and pumped rinse waters shall be kept clean. Water shall be maintained at not less than the following temperatures:

(1) Wash temperature: 140° - 160° F (60° - 71° C)

(2) Pumped rinse temperature: 160° - 180° F (60° - 82° C)

(3) Final rinse temperature: 180° - 195° F (82° - 91° C)

b. Wash and pumped rinse temperatures are measured in the respective tanks, and the final rinse temperature is measured at the manifold.

6. Drying. All equipment and utensils shall be air dried. Fans or forced air shall not be used to dry equipment and utensils.

B. Equipment and Utensil Storage.

1. Handling. Clean and sanitized equipment and utensils shall be handled in a way that protects them from contamination. Spoons, knives, and forks shall be touched only by their handles. These utensils shall be washed with handles down in containers and then transferred (inverted) to storage containers with handles up. Cups, glasses, and bowls shall be handled without contact with inside surfaces or with surfaces that contact the user's mouth.

2. Storage.

a. Clean and sanitized utensils and moveable equipment shall be stored above the floor in a clean, dry location in a way that protects them from contamination by splash, dust, and other means. The food contact surfaces of fixed equipment shall also be protected from contamination. Equipment and utensils shall not be placed under exposed sewer or non-potable water lines.

b. Utensils shall be air dried before being stored or shall be stored in a self-draining position on suitably located hooks or racks.

c. Whenever practical, stored utensils shall be covered or inverted. Facilities for the storage of spoons, knives, and forks shall be provided and shall be designed to present the handle to the employee or consumer.

5-B-2. d. Cups, bowls, glasses, plates, etc., shall be stored inverted in racks or in closed cabinets.

e. All waste disposal plumbing or lines, open or closed, which pass over food preparation areas, food storage areas, utensil and equipment washing or storage areas, and areas where food is served, shall be provided with a one piece constructed metal dropless trough immediately below such waste line and sloped to drain away from such area.

3. Pre-set Tableware.

a. Tableware shall be set prior to serving a meal only if glasses and cups are inverted, and knives, forks, and spoons are wrapped or otherwise covered.

b All unused pre-set tableware shall be collected for washing and sanitizing after the meal period.

4. Single-Service Articles.

a. Single-service articles shall be stored above the floor on clean shelves and in closed containers that protect them from contamination.

b. Single-service articles shall be commercially packaged for individual use or shall be available to the consumer from a dispenser in a way that prevents contamination of surfaces that may contact food or the user's mouth. Handling of single-service articles in bulk shall be conducted in a way that protects them from contamination.

c. Single-service articles shall be used only once.

C. Storage of Cleaning Gear.

1. Cleaning gear and cleaning supplies shall be stored only in an area specifically designated for that purpose. These items shall not be stored in food preparation or serving areas, in storage cabinets, or on food storage shelves. To preclude the creation of a fire hazard they shall not be stored in the same cabinet or locker as insecticides.

2. Cleaning gear shall include:

a. Swabs

b. Brushes

c. Rags

5-C-2. d. Brooms

e. Cloths

f. Buckets

3. Cleaning supplies shall include:

a. Detergents

b. Disinfectants

c. Toxic Materials (floor wax, brass metal polish, etc.).

4. Swabs shall be kept clean, disinfected weekly and aired in racks or on hangers off the deck with head down. They should be stored outside. They shall not be stored in any food preparation, serving, or storage areas.

5. The use of steel wool for cleaning equipment and utensils is prohibited.

6. Calcium Hypochlorite, which is used for chlorinating potable water, shall not be stored in any food service spaces.

CHAPTER 6 - SANITARY FACILITIES AND CONTROLS

A. Water Supply.

1. General. Enough potable water for the needs of the food service establishment shall be provided from a source constructed and operated in accordance with the Water Supply and Waste Water Disposal Manual, COMDTINST M11300.2(series).

2. Transportation. All water not provided directly by pipe to the food service establishment from the source shall be transported in an enclosed bulk water transfer system and shall be delivered to a closed water system. Both of these systems shall be constructed and operated in accordance with the Water Supply and Waste Water Disposal Manual, COMDTINST M11300.2(series).

3. Bottled Water. Bottled and packaged water shall be handled and stored in a way that protects it from contamination, and dispensed from the original container filled by the supplier. The name, address, and telephone number of the supplier shall be provided on the container.

4. Running Water. Cold running water under pressure shall be provided to all equipment that uses water. Hot and cold running water under pressure shall be provided to all lavatories and to all water-using equipment where utensils or equipment are washed or where food is prepared.

5. Steam. Steam used in contact with food or food contact surfaces shall be free from any material or additives other than those allowed by the Food and Drug Administration.

B. Sewage. All sewage, including liquid waste, shall be disposed of by a public sewerage system or by a sewage disposal system in accordance with the Water Supply and Waste Water Disposal Manual, COMDTINST M11300.2(series). Non-water carried sewage disposal facilities are prohibited, except as permitted by Chapter 9 of this manual (Pertaining to temporary food service establishments).

C. Plumbing.

1. General. Plumbing shall be sized, installed, and maintained according to the Civil Engineering Manual, COMDTINST M11000.1(series). There shall be no cross connection between the potable water supply and any unsafe or questionable water supply nor any source of pollution through which the potable water supply might become contaminated.

6-C-2. Non-potable Water System. A non-potable water system is permitted only for such purposes as air-conditioning and fire protection, toilet facilities, and only if the system is installed according to the Civil Engineering Manual, COMDTINST M11000.1(series) and the non-potable water does not contact, directly or indirectly, food, potable water, equipment that contacts foods, or utensils. The piping of any non-potable water system shall be durably identified and readily distinguishable from piping that carries potable water.

3. Drains. There shall be no direct connection between the sewage system and any drains originating from equipment in which food, portable equipment, or utensils are placed, to include dishwashing machines. Drain lines from all fixtures, appliances, compartments, refrigeration units, or devices that are used, designed for, or intended to be used in the preparation, processing, storage, or handling of food, ice, or drinks shall be indirectly connected to appropriate waste systems by means of an air gap.

4. All food preparation and scullery areas shall be equipped with adequate floor drains. Floors surrounding the drains shall be sloped at an even gradient so that floors are self draining.

5. Back flow.

   a. Back flow is the movement of contaminated water into the potable water distribution system from sources other than the potable water supply. This may occur if the pressure of contaminated water overcomes the pressure of the potable water supply. "Back-siphonage" is a form of back flow caused by negative pressure in the potable water supply line, "a soda straw effect" due to disruption of the potable water supply pressure.

   b. Back flow prevention. When potable water is supplied under pressure, the system must be protected against back flow or other contamination by vacuum breakers, back flow preventers, or air gaps between the delivery point of the water and the overflow rim of the unit. Vacuum breakers or back flow preventers must be installed when air gaps are impractical or when water under pressure is required. Vacuum breakers, when used, must be installed on the supply lines on the discharge side of the last control valve at least 6 inches above the flood-level rim of the fixture to protect the potable water system from potential contamination.

6-C-5. c. The following kinds of back flow preventers are readily available:

(1) Atmospheric vacuum breakers are designed for an attachment that does not have a shutoff downstream from the installation point, and are commonly found on utility sink spigots and on garbage disposal water supplies. Atmospheric-type vacuum breakers used under continuous pressure may become "frozen" due to a buildup of minerals and may not function under emergency conditions.

(2) Hose connection vacuum breakers are a small fitting attached directly between the hose bibb (spigot) and the hose. They have a single check with an atmospheric vacuum breaker vent, and are not designed for continuous pressure. Contamination of the potable water supply may potentially occur from an unprotected hose submerged in liquid in a sink, swab washing station or on the ground. This back-siphonage may occur in the event of stoppage of the water supply due to firefighting, repairs or breaks in the water main.

(3) Specialty back flow preventers with intermediate atmospheric vents have two independent vacuum breakers and a relief valve. They are used in low-hazard situations, such as permanently charged sink spray hoses, and are effective under constant pressure.

6. Grease Traps. If used, grease traps shall be located to be easily accessible for cleaning.

D. Head Facilities.

1. Heads shall be installed according to the Civil Engineering Manual, COMDTINST M11000.1(series), shall be adequate in number, shall be conveniently located, and shall be accessible to employees.

2. Toilets and urinals shall be designed to be easily cleanable.

3. Heads shall be completely enclosed and shall have tight fitting, self-closing, solid doors, (except for ventilation grilles) which shall be closed except during cleaning and maintenance.

6-D-4. Heads, including vestibules, shall be kept clean and in good repair and free of objectionable odors. A supply of toilet tissue shall be provided at each toilet. Easily cleanable receptacles shall be provided for waste materials and they shall be covered.

5. The storage of food, equipment, utensils, or single-service articles in the heads or vestibules is prohibited.

6. Toilets shall have mechanical ventilation with at least the minimum number of air exchanges as per Civil Engineering Manual, COMDTINST M11000.1(series). Exhaust air shall be discharged to the outside. Handwashing posters shall be prominently displayed in all heads.

E. Sinks.

1. Sinks shall be of sanitary design, easily cleanable, adequate in number, and located to permit convenient use by all employees in food preparation areas, utensil washing areas and heads or vestibules. Sinks used for washing utensils, equipment, or food preparation shall not be used for handwashing.

2. Each sink shall be provided with hot and cold running water or running water tempered by means of a mixing valve. Any slow-closing or metered faucet shall provide a flow of water for at least thirty (30) seconds without the need to reactivate the faucet. Steam-mixing valves are prohibited.

3. Sinks, soap dispensers, hand drying devices and all related facilities shall be kept clean and in good repair. Sufficient handwashing sinks must be provided. Handwashing facilities must be maintained in good repair and located to permit easy use by food service personnel in food preparation areas. No food handler should have to walk a distance of more than 25 feet to reach a handwashing sink.

4. A supply of hand-cleaning soap or detergent shall be available at each handwashing sink. A supply of sanitary towels shall be conveniently located near each sink. Common soap bars, towels, and rotating cloth towels are prohibited. If disposable towels are used, waste receptacles shall be conveniently located near the handwashing facilities and shall be fitted with tight fitting covers, doors, or lids.

6-F. Garbage and Refuse.

1. Containers.

a. Garbage and refuse shall be kept in covered, durable, insect resistant, and rodent proof containers that do not leak and do not absorb liquids. Plastic bags and wet strength paper bags may be used to line these containers, and may be used for storage inside food service establishments when protected from insects and rodents.

b. Containers, compactors, and compactor systems shall be easily cleanable; shall be provided with tight fitting covers, doors, or lids, and shall be kept covered when not actually in use. Drain plugs shall be in place except during cleaning.

c. There shall be a sufficient number of containers to hold all the garbage and refuse that accumulates.

d. After being emptied, each container shall be thoroughly cleaned on the inside and outside in a way that does not contaminate food, equipment, utensils, or food preparation areas. Suitable facilities, and cleaning gear including hot water and detergent, shall be provided and used for washing containers. Liquid waste from compacting or cleaning operations shall be disposed of as garbage.

2. Storage.

a. Garbage and refuse on the premises shall be stored in a place resistant to insects and rodents. Outside storage of plastic bags, wet strength paper bags or baled units containing garbage or refuse is prohibited.

b. Garbage or refuse storage rooms shall be constructed of easily cleanable, non-absorbent, washable materials, shall be kept clean, shall be insect and rodent proof, and shall be large enough to store garbage and refuse containers that accumulate.

c. Outside storage areas or enclosures shall be large enough to store the garbage or refuse containers that accumulate and shall be kept clean. Garbage and refuse containers and compactor systems located outside shall be stored on or above a smooth surface of non-absorbent material, such as concrete or machine-laid asphalt, that is kept clean and maintained in good repair.

6-F-2. d. If possible, garbage or refuse storage areas shall be located at least 100' (one hundred feet) away from the nearest entrance to the food service establishment.

3. Disposal.

a. Garbage and refuse shall be disposed of often enough to prevent the development of odor and the attraction of insects and rodents.

b. When garbage or refuse is burned on the premises, it shall be done by controlled incineration that prevents the escape of particulate matter. Areas around incineration facilities shall be kept clean and orderly. Local air quality regulations shall be followed when burning garbage or refuse.

c. Aboard all cutters, garbage shall be disposed of in accordance with current Commandant, Area, and District directives.

d. Aboard all cutters returning from a foreign port, garbage shall be disposed in accordance with requirements established by the USDA.

G. Insect and Rodent Control.

1. General.

a. The public works officer shall maintain an adequate insect and rodent control program to ensure elimination of pests within and around the food service establishment. At other units not having a public works officer, personnel certified in pest control applications should be assigned these duties.

b. Effective measures and frequent inspections should be made to ensure the elimination of rodents, flies, roaches, and other vermin on the food service premises. These premises shall be kept in good condition and repair to prevent the harborage and feeding of insects and rodents. Electronic and ultrasonic insect traps have been shown to be relatively ineffective, and their use in Coast Guard Food Service Facilities is not warranted.

2. Openings. Building openings to the outside shall be effectively protected against the entrance of insects by tight fitting, self-closing doors, closed windows, screens, controlled air currents, and other means. Screen doors shall open outward and be self-closing. Screen doors must open outward for good physical control of flies. Screens for windows, doors, skylights, transoms, and other openings to the outside shall be tight fitting and free of breaks. Screening material shall not be less than 16 mesh to one (1) inch.

CHAPTER 7 - CONSTRUCTION AND MAINTENANCE OF PHYSICAL FACILITIES

A. Floors.

1. The floors of all food preparation areas, utensil washing areas, and walk-in refrigerators shall be of hard, skid resistant, non-absorbent finish material, easily cleaned and durable. The floors of all locker rooms, vestibules, and food storage areas shall be constructed of smooth, durable materials such as concrete, terrazzo, ceramic tile, durable grades of linoleum or plastic, and shall be maintained in good repair, and shall meet NSF standards. No exposed wood flooring is permitted.

2. Carpeting, if used, shall be of closely woven construction, properly installed, easily cleanable, and maintained in good repair. Carpeting is prohibited in food preparation, food equipment and utensil washing areas and where it would be exposed to large amounts of grease and water.

3. Sawdust, wood shavings, peanut hulls, or similar material on the floors is prohibited.

4. Properly installed floor drains shall be provided in floors that are water flushed for cleaning or that receive discharges of water or other fluid waste from equipment.

5. The floors of each walk-in refrigerator shall be graded to drain all parts of the floor to the outside through a drain pipe, doorway, or other opening, or be equipped with a floor drain.

6. Mats and duckboards shall be of size, materials, design, and construction to facilitate easy cleaning.

7. Junctures of walls with floors shall be sanitary covered.

8. Utility service lines and pipes shall not be unnecessarily exposed on the floors in food preparation and utensil washing areas and in heads. Exposed lines and pipes shall be installed in a way that does not obstruct or prevent cleaning.

B. Walls and Ceilings.

1. The walls, including non-supporting partitions, and ceilings in all food preparation areas, utensil washing areas and heads shall have water resistant surfaces such as ceramic tile, epoxy coatings, etc. Vestibules shall be light in color, smooth, non-absorbent, and easily cleanable. The use of rough or unfinished building materials such as brick, concrete blocks, wooden beams, or shingles is prohibited in these locations.

7-B-2. Studs, joists, and rafters shall not be exposed in food preparation areas, utensil washing areas, and in heads. If exposed in other rooms, they shall be finished to provide an easily cleanable surface.

3. Utility service lines and pipes shall not be unnecessarily exposed on walls or ceilings in food preparation and utensil washing areas and heads. Exposed lines and pipes shall be installed in a way that does not obstruct or prevent cleaning.

4. Light fixtures, vent covers, wall mounted fans, decorative materials, and similar equipment attached to walls and ceilings shall be easily cleanable and shall be maintained in good repair.

5. No wall covering material such as sheet metal, linoleum, vinyl, ceramic tile and similar materials shall be permitted in food preparation areas.

6. Concrete or pumice blocks used for interior wall construction shall be finished and sealed to provide an easily cleanable surface.

C. Cleaning Physical Facilities.

1. Floors, mats, duckboards, walls, ceilings, and attached equipment and decorative materials shall be kept clean. Only dustless methods of cleaning floors and walls shall be used, such as vacuum cleaning; wet cleaning (swabbing with warm soap and water), or the use of dust-arresting sweeping compounds and pushbrooms.

2. All floors shall be thoroughly cleaned after each meal.

3. Cleaning of floors and walls, except emergency cleaning of floors, shall be done during periods when the least amount of food is exposed, such as between meals and after closing.

D. Lighting.

1. At least one-hundred (100) foot-candles of light shall be provided to all working surfaces and at least fifty (50) foot-candles of light shall be provided to all other surfaces and equipment in food preparation, utensil washing, and hand washing areas and in toilet rooms. At least twenty (20) foot-candles of light at a distance of fifty (50) inches from the floor shall be provided in all other areas, except that this requirement applies to dining areas only during cleaning operations.

2. Shielding to protect against broken glass falling into food shall be provided for all artificial lighting

7-D-2. (cont'd) fixtures located over, by, or within food storage, preparation, service, and display areas, and areas where utensils and equipment are cleaned and stored.

E. Ventilation.

1. All rooms shall have sufficient ventilation to keep them free of excessive heat, steam, condensation, vapors, smoke, and fumes. Ventilation systems shall be installed and operated according to the Civil Engineering Manual COMDTINST M11000.1 and when vented to the outside, shall not create an unsightly or harmful discharge.

2. Special Ventilation.

a. Rooms, areas, and equipment from which aerosols, obnoxious odors, or noxious fumes or vapor may originate shall be vented effectively to the outside.

b. Intake air ducts shall be designated and maintained to prevent the entrance of dust, dirt, insects, and other contaminating materials.

F. Dressing Areas and Lockers.

1. Dressing areas shall be designated for employees routinely changing clothes within a food service establishment.

2. These areas shall not be located in areas used for food preparation, storage, or service, or for utensil washing or storage.

3. A storage room containing completely packaged food may be designated as a dressing area provided that lockers are available for the storage of clothing.

G. Poisonous or Toxic Materials.

1. Only those poisonous or toxic materials required to maintain the establishment in a sanitary condition or required for sanitation of equipment or utensils shall be present in food service establishments.

2. Containers of poisonous or toxic materials, including insecticides, reconditions, caustics, acids, polishes, and other chemicals shall be prominently and distinctly labelled for easy identification of contents and shall not be stored in any food service spaces. Material Safety Data Sheets for these materials shall be available and easily accessible to personnel who use them.

7-G-3. Poisonous or toxic materials shall be stored in locked cabinets that are used for no other purpose, or in a place other than an area where food is stored, prepared, displayed, or served, and other than an area where cleaning equipment or utensils are stored. Bactericides and cleaning compounds shall not be stored in the same cabinet or area of a room as are insecticides, rodenticides, or other poisonous or toxic materials. Strong oxidizers such as chlorine compounds shall not be stored with petroleum-based products due to fire hazard.

4. Bactericides, cleaning compounds, or other compounds intended for use on food contact surfaces shall not be used in a way that leaves a toxic residue on surfaces, nor in a way that constitutes a health hazard.

5. Poisonous or toxic materials shall not be used in:

   a. An area where open food is present; nor,

   b. A way that can contaminate equipment or utensils; nor,

   c. A way that constitutes a health hazard to other persons, nor,

   d. A way other than in full compliance with their labeling.

6. Personal medications shall not be stored in any food preparation, storage, or other food service areas.

7. First aid supplies and kits shall be stored in a way that prevents them from contaminating food and food-contact surfaces.

H. Premises.

1. General.

   a. Food service establishments and all parts of the property used in connection with operation of the establishments shall be kept free of litter.

   b. The walking and driving surfaces of all exterior areas of food service establishments shall be surfaced with concrete, asphalt, gravel, or similar material. They shall be effectively treated to facilitate maintenance and to minimize dust. These surfaces shall be drained and kept clean.

   c. Only articles necessary to the operation and maintenance of the food service establishment shall be stored on the premises.

7-H-1. d. The traffic of unnecessary persons through the food preparation and utensil washing areas and the presence in those areas of persons not authorized to be there is prohibited.

2. Living Areas.

a. No operation of a food service establishment shall be conducted in any room used as living or sleeping quarters.

b. A self-closing door shall separate food service operations from any living or sleeping area.

3. Laundry Facilities.

a. No laundry operation shall be conducted, except that linens, uniforms, and aprons used in the establishment may be laundered on the premises.

b. Solid, tight-fitting, self-closing doors shall separate food service operations from any laundry area, except that, laundry operations may be conducted in a storage room containing only packaged foods. Care shall be taken to ensure that lint, dust, and other particles that may accumulate on the packaged foods are removed prior to opening for preparation and serving.

4. Cleaning Equipment Storage. Maintenance and cleaning equipment shall be maintained and stored in a way that does not contaminate food, utensils, equipment or linen storage.

5. Animals. Live animals, including dogs, cats, and birds shall be excluded from all food service establishments. This exclusion does not apply to edible crustacea, shellfish, or fish, nor to fish in aquariums. Guide dogs accompanying blind or deaf persons shall be permitted in dining areas.

CHAPTER 8 - MOBILE FOOD SERVICE

A. Mobile Food Units.

1. General. Mobile food units shall comply with the requirements of this manual, except as otherwise provided in this chapter. The commanding officer may impose additional requirements to protect against health hazards related to the conduct of the food service establishment as a mobile operation. They may also prohibit the sale of some or all potentially hazardous foods. Transportation of food from a centralized kitchen to a satellite dining facility poses special hazards which increase in proportion to distance and time. All foods, therefore, shall be transported in covered containers or completely wrapped or packaged so to protect from contamination, and all potentially hazardous food shall be maintained at 40° F (4.4° C) or below or 140° F (60° C) or above during transportation.

2. Restricted Operation. A mobile food unit shall serve only food that was prepared and packaged in individual servings, transported and stored under conditions meeting the requirements of this manual. Beverages that are not potentially hazardous and are dispensed from covered urns or other protected equipment are authorized. They need not comply with the requirements of this chapter pertaining to the necessity of water and sewage systems, nor to those requirements pertaining to the cleaning and sanitization of equipment and utensils, if the required equipment for cleaning and sanitization exists at the commissary. All food service equipment in mobile vans shall meet applicable design and performance standards of the National Sanitation Foundation.

3. Single-Service Articles. Mobile food units shall provide only single-service articles for use by the consumer.

4. Water Systems. A mobile food unit requiring a water system shall have a potable water system under pressure. The system shall be of sufficient capacity to furnish enough hot and cold water for food preparation, utensil cleaning, sanitization, and hand washing. The water inlet shall be located in such a position that it will not be contaminated by waste discharge, road dust, oil, or grease, and it shall be provided with a transition connection of a size or type that will prevent its use for any other service. All water distribution pipes or tubing shall be constructed and installed according to the requirements of this Chapter.

8-A-5. Waste Retention. If liquid waste results from operation of a mobile food unit, it shall be stored in permanently installed retention tanks that are at least fifty percent (50%) larger than the water supply tank. Liquid waste shall not be discharged from the retention tank when the mobile food unit is in motion. All connections on the vehicle for servicing mobile food unit's waste disposal facilities shall be of a different size and type than those used for supplying potable water to the food unit. The waste connection shall be located below the water connection to preclude contamination of the potable water system.

B. Commissary. Mobile food units shall operate from a commissary or other fixed food service establishment that is constructed and operated in compliance with the requirements of this manual.

C. Servicing Area and Operations.

1. Servicing Area. An enclosed service building separated from commissary operations shall be provided for supplying and maintaining mobile food units. The service area shall be constructed and operated in compliance with the requirements of this manual.

2. Servicing Operations.

a. Potable water servicing equipment shall be stored in a way that protects the water and equipment from contamination.

b. The mobile food unit liquid waste tank shall be thoroughly flushed and drained during servicing operations. All liquid waste shall be discharged to a sanitary disposal system in accordance with the Water Supply and Waste Water Disposal Manual, COMDTINST M11300.2(series). The flushing and draining area for liquid waste shall be separate from the area for loading and unloading of food and related supplies.

CHAPTER 9 - TEMPORARY FOOD SERVICE ESTABLISHMENTS

A. General. A temporary food service establishment shall comply with the requirements of this manual. The commanding officer may impose additional requirements to protect against health hazards related to the conduct of the temporary food service establishment and may prohibit the sale of some or all potentially hazardous foods. Requirements of this chapter may be waived or modified when no health hazard will result.

B. Operating Restrictions.

1. This section is applicable whenever a temporary food service establishment is permitted to operate without complying with all the requirements of this chapter.

2. Potentially hazardous foods may not be served, except those that require only limited preparation such as seasoning and cooking, i.e., hamburgers, frankfurters, etc. This prohibition includes pastries filled with cream or synthetic cream, custards (or similar products), and salads or sandwiches containing meat, poultry, egg, or fish. This prohibition does not apply, however, to any potentially hazardous food that has been prepared and packaged under conditions meeting the requirements of this chapter if it is obtained in individual servings stored at a temperature of 40° F (4° C) or below, or not less than 140° F (60° C). The facilities shall meet the requirements of this chapter, and all food items shall be served directly in the unopened container in which it was packaged.

3. Ice. Ice that is consumed or that contacts food shall have been made under sanitary conditions. The ice shall be obtained only in chipped, crushed, or cubed form and in single use food grade plastic or wet strength bags filled and sealed at the point of manufacture. The ice shall be held in bags until used. When used, the ice shall be dispensed in a way that protects it from contamination.

4. Equipment.

   a. Equipment shall be located and installed in a way that facilitates cleaning the establishment and that prevents food contamination.

   b. Food contact surfaces of equipment shall be protected from contamination by consumers and other contaminating agents. Where helpful to prevent contamination, effective shields for such equipment shall be provided.

9-B-5. Water. Enough potable water shall be available in the establishment for cleaning, sanitizing utensils and equipment, and for hand washing. A heating facility located on the premises and capable of producing enough hot water for these purposes shall be provided.

6. Wet Storage. The storage of packaged food in contact with undrained ice is prohibited.

7. Waste. Liquid waste shall be disposed of in accordance with the Water Supply and Waste Water Disposal Manual, COMDTINST M11300.2(series).

8. Handwashing. A facility shall be provided for employee hand-washing. Where water pressure is unavailable, such facility shall consist of at least a pan, liquid or powdered soap in a mechanical dispenser, water, and individual paper towels.

9. Floors. Floors shall be made of concrete, tight wood, asphalt, or other similar cleanable materials. Dirt or gravel floors may be used if graded to preclude the accumulation of liquids and covered with removable, cleanable platforms and duckboards.

10. Walls and Ceilings of Food Preparation Areas.

a. Walls and ceilings of food preparation areas shall be constructed in a way that prevents the entrance of insects. Ceilings shall be made of wood, canvas, or other materials that protects the interior of the establishment from the weather. Screening material used for walls shall be at least sixteen (16) mesh to the inch.

b. Counter service openings shall not be larger than are necessary for the particular operation conducted. These openings shall be provided with tight windows or shall be provided with fans installed and operated to restrict the entrance of flying insects. Doors and windows, if any, shall be kept closed, except when food is being served.

CHAPTER 10 - MISCELLANEOUS

A. Salad Bars and Self-Service Items.

1. Salad Bars.

a. Salad bars may be set up on a self-service basis and shall be equipped with a "sneeze shield." To assure proper refrigeration, all salad bar items shall be placed in pans or in trays and shall be pre-chilled prior to being placed on the salad bar. The pans or trays shall be placed on a bed of ice or an electrically refrigerated salad bar unit. Proper drainage is essential if ice is used to chill salad bar items.

b. Easily contaminated foods (salad mixtures containing meat, fish, poultry, eggs, cooked salad dressing, and mayonnaise) shall be placed on the salad bar in small quantities and replenished as needed. All such items and any mayonnaise or cooked salad dressing remaining on the salad bar shall be refrigerated at 40° F (4.4° C) or below and after completion of the meal all remaining food shall be destroyed.

c. Careful attention shall be given to arrangement of salad bar items to eliminate the necessity of reaching over one container of food to get to another.

d. An adequate number of proper serving utensils for the salad bar shall be provided to ensure proper sanitation and aid in keeping the salad bar in neat order during self-service.

e. Certain commercial brands of salad dressings are exempted from the requirement for refrigeration during meal periods. Guidance concerning which brands and products are exempt may be obtained from preventive medicine personnel or by reading the label.

2. Self-Service Items.

a. Food items permitted in self-service areas are bread, butter, crackers, relishes, condiments, beverages, and certain types of desserts. Desserts which may be self-served are:

(1) Desserts in individual dishes,

(2) Individually wrapped portions of ice cream,

(3) Cookies,

(4) Fruits (fresh, canned, stewed, and frozen), and

(5) Fruit-flavored gelatin.

10-A-2. b. Desserts such as cakes, pies, puddings, and bulk ice cream shall not be self-served unless set up in individual dishes.

c. Clubs, dining facilities, and exchanges may serve prewrapped sandwiches as self-service items. If not refrigerated during service, sandwiches must be served and consumed within three (3) hours after removal from refrigeration.

d. The person in charge of the serving line shall ensure sanitary self-service conditions by having an adequate number of appropriate serving utensils near or with the foods designated for self-service. Self-service lines shall be carefully supervised throughout the meal period to keep foods neatly arranged and replenished as needed.

e. Authority to permit self-service of items other than those listed in the proceding paragraphs shall be requested in writing from the commanding officer.

B. Preparation and Serving of Sandwiches.

1. Preparation of Sandwiches. Due to the method of preparation, types of filling, handling and storage procedures, sandwiches are potentially hazardous food items. The following requirements shall therefore apply to their preparation and storage:

a. Sandwiches not prepared at a Coast Guard activity shall be procured from a commercial establishment that is listed in the area Directory of Sanitarily Approved Food Establishments for Armed Forces Procurement as published by the Department of the Army.

b. Sandwiches shall be freshly prepared and shall be properly labeled. Each sandwich shall be labeled, marked or stamped with the date and time of preparation and a "pull date." Disposable polyethelene gloves or the equivalent shall be utilized by all food service personnel preparing sandwiches.

c. Sandwiches freshly prepared must be refrigerated immediately.

d. Sandwiches intended to be eaten hot, such as a Reuben sandwich, shall be prepared upon customer request or in a mass feeding facility, such as a dining facility, immediately prior to serving.

e. Sandwiches shall be individually wrapped in polyethylene film, wax paper or similar materials except in those instances where sandwiches are made to individual customer order, such as on a galley short order line.

10-B-2. Classification of Sandwiches. For the purpose of discussion, sandwiches are categorized in three classes:

a. Class I - Fresh, chilled, prepared daily are for sale over the counter, off mobile vending trucks, or via vending machines. This class also includes sandwiches prepared by a ship or shore activity galley for serving as "Mid Rats", utilizing "leftovers" or portions of unused meals, and frozen commercially prepared sandwiches delivered to a user activity in refrigerator equipped trucks at temperatures above 0° F (-17.8° C).

b. Class II - Sandwiches which are prepared in the Coast Guard dining facility and intended for use in flight or boat meals should be prepared and handled as prescribed in Section 10-C-1 of this Chapter. If this is infeasible, the sandwiches are subject to the following requirements;

(1) Only fresh prepared sandwiches containing suitable ingredients for freezing shall be frozen.

(2) Each sandwich shall be wrapped and sealed separately in a double thickness of polyethylene film, wax paper, or other moisture vapor resistant material.

(3) Immediately after wrapping, sandwiches shall be frozen at 0° F (-17.8° C) or below and stored at the same temperature.

(4) Using units shall be informed that sandwiches shall be consumed within five (5) hours from issue (time begins when sandwiches are removed from the freezer).

c. Class III - Sandwiches, frozen commercial, shall mean that the sandwich material was prepared initially for mass sandwich production; that the central kitchen is designed specifically for mass sandwich production; that the sandwiches are hermetically sealed, individually and immediately frozen to zero degrees F (-17.8° C) or below and kept at these temperatures in the central storage freezer. It also means that the sandwiches are transported in trucks and equipped with freezers and arrive at the destination in a frozen state and are thawed on a daily basis according to consumer demand. These sandwiches containing only the bread and meat or cheese portion, are characterized as requiring thawing in a refrigerator (before use between 34° F (1.1° C)and 40° F (4.4° C)), and are limited to ingredients that are adaptable for freezer storage. The method of serving is to heat or toast the sandwich in conventional, infrared, or microwave ovens.

10-B-3. Storage Requirements.

a. Class I Sandwiches:
Storage Temperature: 34° to 40° F (1.1° to 4.4° C)
Shelf Life: 36 hours

b. Class II Sandwiches:
Storage Temperature: 0° F (-17.8° C) or below
Shelf Life: Freezer - Maximum 15 days

c. Class III Sandwiches:
Storage Temperature: 0° F (-17.8° C) or below
Thaw Temperature: 34° to 40° F (1.1° to 4.4° C)

d. Shelf Life.

(1) Commercial Freezer - Maximum 60 days from date of production to date of delivery.

(2) Freezer - Maximum 15 days beginning date of delivery.

(3) Refrigerator - 36 hours beginning when sandwiches are removed from freezer, after which the sandwiches shall be discarded as garbage.

4. Identification of Processor and Dating of Sandwiches.

a. Each sandwich shall be labeled, marked or stamped with the date and time of preparation and a "pull date."

b. In addition, each carton or case of sandwiches shall be stamped or affixed with the processor's name, address of the preparation site, and preparation date.

C. Special Meals.

1. The three (3) hour maximum time permitted for holding potentially hazardous foods at temperatures between 40° F (4.4° C) to 140° F (60° C) is of particular importance in the case of special meals (boat meals, flight meals and recreation parties).

2. When preparing and using sandwich fillings containing meat, meat food products, poultry, fish, or eggs, it is essential that close galley supervision and liaison with using units be maintained to ensure continuous refrigeration. These foods shall be prepared and cooked in accordance with the methods prescribed in the Armed Forces Recipe Service, NAVSUP PUB 7, stock number 0530-LP-016-1060. Such fillings shall not be held longer than three (3) hours between the temperatures of 40° (4.4° C) and 140° F (60° C)(total lapsed time in the galley and aboard aircraft, boats, and ships).

10-C-3. Unopened cans of meat, chicken, and tuna may be used in lieu of meat sandwiches when consumption is not anticipated within the three (3) hour time limit. In these instances bread and butter sandwiches may be issued with the canned items to permit members to make their own sandwiches, if they so desire. All types of flight rations, however, shall be carefully packaged to preclude the risk of contamination and exposure during transit from galley to plane.

4. Further information on special feeding conditions (such as battle meals) and subsistence operations in cases of nuclear, biological, or chemical warfare may be found in Food Service Operations, NAVSUP PUB 421, Stock Number 0530-LP-421-0010.

D. Express Serving Lines.

1. Many activities and commands have installed express serving lines (separate from main serving line) in the Coast Guard dining facility. This allows personnel to have a choice of items rather than the full course meal.

2. Sanitary practices must be observed when preparing, handling, and serving food at these express lines. Most items served are potentially hazardous foods, and the three (3) hour rule for preparing and serving takes on added importance. This includes the time required to prepare the food and the holding time prior to consumption.

3. Adequate refrigeration shall be provided at or near the express serving line. This will avoid the necessity of carrying the foods from central refrigeration and allowing them to remain out of refrigeration for excessive periods of time.

4. Careful surveillance by the medical and supply department personnel is necessary to preclude any possibility of laxness in sanitary measures. Food service personnel working at these express serving lines shall be instructed to use extra precautions in handling, preparing, and serving food, as these potentially hazardous foods require careful and alert attention to safe, recommended food service practices.

E. Coffee Messes.

1. Authorization requests for establishment of coffee messes shall be approved by the commanding officer. The medical department shall be notified when coffee messes are established to ensure compliance with the sanitary standards as outlined in this section.

10-E-2. All coffee messes shall comply with the following standards:

a. Each mess shall be located in an area that can be easily cleaned and shall be maintained in a clean, sanitary condition at all times. Coffee messes shall not be located in certain critical areas such as patient treatment areas, restrooms, industrial work spaces, and any food service storage spaces or utensil washing areas.

b. Adequate facilities at the site of the coffee mess, or located conveniently nearby, shall be provided for washing and sanitizing all coffee mess equipment and utensils.

c. Bulk sugar, coffee, and non-dairy creamer shall be stored in containers with tight fitting covers. Sugar may also be served in single-service packages or from sanitary, pour-type dispensers.

d. Coffee shall be served in single-service containers, or each person in the mess shall have his or her own coffee cup, provided facilities are available to wash and sanitize each cup. Cups shall be washed thoroughly and sanitized in hot water and then placed on racks or trays and allowed to air dry. The use of common cups is prohibited.

e. Adequate refrigeration shall be provided when milk or cream is used. When canned evaporated milk is used, tops of cans shall be cleaned thoroughly and punctured with a sanitized cutting instrument. Opened cans of evaporated milk shall be refrigerated between serving periods and shall not be held unrefrigerated for more than three (3) hours.

f. The use of a common stirring spoon is prohibited. Single-service stirrers shall be used.

g. Personnel shall not prepare or cook foods in any coffee mess. Garbage shall be kept in tightly covered containers until removed. Coffee grounds shall be disposed of in trash cans which are plastic lined and shall not be disposed of in regular office trash cans. The coffee mess shall be protected from flies, insects, and rodents.

3. Coffee messes shall be inspected at regular intervals by the medical department representative or other personnel assigned by the commanding officer in conjunction with weekly sanitation inspections.

10-F-3. c. (1) All food contact surfaces, unless designed for in-place cleaning, shall be accessible for manual cleaning and inspection:

(a) Without being disassembled; or,

(b) By easy disassembly with the use of only simple tools such as a screwdriver or an open-end wrench.

(2) In machines which have food-contact surfaces that are not readily removable, in-place cleaning may be permitted provided:

(a) They are arranged so that cleaning and sanitizing solutions can be circulated throughout the fixed system;

(b) Such solutions will contact all food-contact surfaces;

(c) The system is self-draining or otherwise completely evacuated; and,

(d) The procedures used result in thorough cleaning of the equipment.

d. The openings into all nonpressurized containers used for the storage of vendable food, including water, shall be provided with covers which prevent contaminating the interior of the containers. Such covers shall be designed to provide a flange which overlaps the opening and shall be sloped to provide drainage from the cover wherever the collection of condensation, moisture, or splash is possible. Concave covers or cover areas are prohibited. Any port opening through the cover shall be flanged upward at least three-sixteenths (3/16) inch (4.7 mm) and shall be provided with an overlapping cover flanged downward. Condensation, drip, or dust deflecting aprons shall be provided on all piping, thermometers, equipment, rotary shafts, and other functional parts extending into the food container, unless a water-tight joint is provided. Such aprons shall be considered as satisfactory covers for those openings which are in continuous use. Gaskets shall be of material which is nontoxic, relatively stable, nonabsorbent and shall have a smooth surface. All gasket retaining grooves shall be easily cleanable.

e. The delivery tube or chute and orifice of all bulk food and bulk beverage vending machines shall be protected from normal manual contact, dust, insects, rodents, and other contamination. The design shall divert condensation or other moisture from the normal filling position of the container receiving the food or beverage.

10-F-3. e. (cont'd) The vending stage of such machines shall be provided with a tight-fitting, self-closing door or cover which is kept shut, except when food is being removed.

f. The food storage compartment within vending machines dispensing packaged liquid food shall be self-draining, or shall be provided with a drain outlet which permits complete draining of the compartment. All such drains shall be easily cleanable.

g. Opening devices which come into contact with the food or the food-contact surface of the containers shall be constructed of smooth, nontoxic, corrosion-resistant, and relatively nonabsorbent materials. Unless the opening device is of a single-service type, it shall be readily removable for cleaning, and shall be kept clean. Parts of multi-use opening devices which come into contact with the food or food-contact surface of containers shall be protected from manual contact, dust, insects, rodents, and other contamination. Such parts shall be readily removable for cleaning.

4. Water Supply.

a. All water used in vending machines shall be potable. Water used as a food ingredient shall be piped to the vending machine under pressure or brought to the vending machine in portable containers or urns which have been filled in a sanitary manner directly from an approved water supply outlet at the commissary or other approved location. Ingredient water shall not be transferred from one container to another at the machine location. Containers for the storage of ingredient water or ice, which are not a part of this closed water system, shall be designed and maintained as food-contact surfaces. Water containers or urns shall be cleaned and sanitized at the commissary or other approved facility after each use. Such portable containers shall be continuously protected against contamination from the time of sanitizing until placed in the vending machine. Protection shall be effected which will prevent unauthorized persons from tampering with or refilling the water container. All plumbing connections and fittings shall be installed in accordance with state and local plumbing regulations.

b. If used, water filters or other water conditioning devices shall be a type which may be disassembled for periodic cleaning or replacement of the active element. Replacement elements shall be handled in a sanitary manner. Such devices should be examined at least monthly for signs of fouling or clogging.

10-F-4. c. All vending machines which dispense carbonated beverages, and which are connected to a water supply system, shall be equipped with an appropriate backflow prevention device; or an air gap; or a device to vent carbon dioxide to the atmosphere; or other approved device, which will provide positive protection against the entrance of carbon dioxide or carbonated water into the water supply system.

d. In all vending machines which dispense carbonated beverages and which are connected to a water supply system, the ingredient water contact surfaces from the check valves or other protective device downstream, including the device itself, shall be of such material as to preclude the production of toxic substances which might result from interaction with carbon dioxide or carbonated water.

5. Waste Disposal.

a. All trash and other waste material shall be removed from the machine location as frequently as necessary to prevent nuisance and unsightliness, and shall be disposed of in an approved manner.

b. A self-closing, leak-proof, easily cleanable, plainly labeled and designated waste container shall be provided in the vicinity of each machine or machines to receive used cups, cartons, wrappers, straws, closures, and other single-service items. After being emptied, each waste container shall be thoroughly cleaned. Such waste containers shall not be located within the vending machine provided: that an exception may be made for those machines dispensing only packaged food with crown closures; in which case, the closure receptacle may be located within the machine. Suitable racks or cases shall be provided for multiuse containers or bottles.

c. Within all machines dispensing liquid food in bulk, containers shall be provided for collection of drip, spillage, overflow, or other internal wastes. An automatic shut-off device shall be provided which will place the vending machine out of operation before such container overflows. Containers or surfaces on which such wastes may accumulate shall be readily removable for cleaning, shall be easily cleanable, and shall be corrosion-resistant. If liquid wastes from drip, spillage, or overflow, which originate within the machine are discharged into a sewerage system, the connection to the sewer shall be through an air gap.

10-F-6. Examination and Condemnation of Adulterated and Misbranded Food. Samples of food may be taken and examined by the medical department representative as often as may be necessary to determine freedom form adulteration or misbranding. The medical department may, on written notice to the operator, impound and forbid the sale of any food which is adulterated or misbranded, or which he/she has probable cause to believe that the food or item is adulterated or misbranded. After the operator has been given an opportunity for a hearing, the commanding officer may cause the removal or destruction of any food which is considered adulterated or misbranded, however, in the case of misbranding which can be corrected by proper labeling, such food may be released to the operator for correct labeling under the supervision of the medical department representative.

7. Sanitation Requirements For Vending Machines.

a. All food offered for sale through vending machines shall be manufactured, processed, and prepared in commissaries, or establishments which comply with all the provisions of this manual, applicable state and local laws and regulations.

b. All food offered for sale through vending machines shall be wholesome.

c. All food shall be stored or packaged in clean protective containers, and shall be handled, transported and vended in a sanitary manner. Condiments provided for service in conjunction with food dispensed by a vending machine shall be packaged in individual portions in single-service containers or shall be dispensed from approved sanitary dispensers which are washed, sanitized, and filled at the commissary. Fresh fruits which may be eaten raw without peeling may be dispensed unpackaged but must be thoroughly washed in potable water before being placed in the vending machine. Storage of cartoned, bottled, canned or packaged food by placing or submerging it in liquid is prohibited. Submerging such containers of food in ice is prohibited.

d. Potentially hazardous food offered for sale through vending machines shall be dispensed to the consumer in the individual original container or wrapper into which it was placed at the commissary or at the manufacturer's or processor's plant. Such products shall be dispensed into single-service containers from bulk containers which were filled at the commissary or at the manufacturer's or processor's plant.

10-F-7. e. In those vending machines which dispense potentially hazardous food from bulk, the bulk supplies of such food shall be transferred only to bulk vending machine containers and appurtenances which have been cleaned and sanitized.

f. Potentially hazardous food within the vending machine shall be maintained at a temperature of 40° F (4.4° C) or below, or not less than 140° F (60° C) whichever is applicable; provided that

(1) Exceptions may be made for the actual time required to load or otherwise service the machine and for a maximum recovery period of 30 minutes, following completion of loading or servicing operation; and

(2) In the case of hot food vending machines, a maximum of 120 minutes to heat food through the 40° F to 140° F (4.4° to 60° C) temperature zone. In hot food vending machines which are not equipped with refrigerated storage, there shall be no time delay to preclude heat from being applied to potentially hazardous food immediately after it is loaded or placed in the machine. Potentially hazardous food once heated to, or held at, a temperature of not less than 140° F (60° C) shall be maintained at such temperature until served or discarded.

(3) Vending machines dispensing potentially hazardous food shall be provided with adequate refrigerating or heating units, or both, and thermostatic controls which ensure the maintenance of applicable temperatures at all times. Such vending machines shall also have controls which prevent the machine from vending potentially hazardous food until serviced by the operator, in the event of power failure or other condition which results in noncompliance with temperature requirements in the food storage compartment.

(4) Hot food vending machines designed to heat food through the 40° F to 140° F (4.4° to 60° C) temperature range shall also be equipped with automatic controls which render the machine incapable of vending potentially hazardous food until serviced by the operator in the event that heating through this temperature range is not accomplished in 2 hours or less.

(5) Potentially hazardous food which has failed to conform to the time-temperature requirements shall be removed from the vending machine and rendered unusable for human consumption.

10-F-7. f. (6) Vending machines dispensing potentially hazardous food shall be provided with one or more thermometers which, to an accuracy of plus or minus 3° F, indicate the air temperature of the warmest part of the refrigerated food storage compartment, or the coldest part of the heated food storage compartment, whichever is applicable.

g. Milk and fluid milk products offered for sale through vending machines shall be pasteurized and shall be dispensed only in individual, original containers or from bulk containers into which such products was placed at the milk plant. Such products may be reconstituted automatically within the vending machine when the following conditions apply:

(1) The powder or concentrate is made from a pasteurized milk or milk product and is from an approved source.

(2) The mixing chambers or bowls and any food-contact surface downstream from such mixing units are maintained at safe temperatures.

(3) The product is reconstituted for immediate dispensing in individual unit servings.

h. Milk and fluid milk products used as an ingredient in hot liquid beverages dispensed from vending machines may be transferred to a multi-use machine canister at the machine location when the following conditions are provided:

(1) The location offers adequate protection against dust, insects, and other contamination. The milk or fluid milk product is transferred from a dairy-filled container which shall not exceed one-half gallon (3.8 L) capacity.

(2) The entire contents of such dairy-filled container are used in the transfer.

(3) Unused portions removed from the machine are discarded as waste.

(4) The milk or fluid product is poured only into an empty canister which has been effectively cleaned and sanitized at the commissary.

(5) Milk or fluid milk products shall not be used as an ingredient under the terms of this paragraph unless the temperature of the hot beverage at the point of mixing with the milk product is not less than 140° F (60° C).

10-F-7. h. (6) Vending machine canisters and appurtenances used for the transfer of such milk products shall be effectively cleaned and sanitized at approved, fixed facilities at the commissary by methods approved by the medical department. After sanitization, the canister and appurtenances shall be fully wrapped in a single service bag or cover which shall not be opened until the canister unit is installed in the refrigerated compartment of the vending machine. Canisters and appurtenances shall be so designed and constructed that the handling of contact surfaces at the machine location is unnecessary. Such surfaces shall not be handled during canister installation, tube insertion, or product transfer.

i. All parts of any bulk milk vending machine which come into direct contact with the milk or milk product shall be effectively cleaned and sanitized at the milk plant. However, single-service dispensing tubes which receive sanitizing treatment at the fabricating plant and which are individually packaged to preclude contamination may be exempted from this provision. The can or other bulk milk container shall be filled only at the milk plant and shall be sealed to make it impractical to withdraw any part of its contents or to introduce any substance without breaking the seal or seals. The delivery tube and any milk-contact parts of the dispensing device shall be attached at the milk plant. They shall be protected by a moisture-proof covering, or housed in a compartment with a moisture-tight closure, which shall not be removed until after the container is placed in the refrigerated compartment of the vending machine.

j. With the exception of food-contact surfaces of bulk milk vending machines for which separate provisions for cleaning and sanitizing are specified in the above paragraph of this section, all multi-use containers or parts of vending machines which come into direct contact with potentially hazardous food shall be removed from the machine daily and shall be thoroughly cleaned and effectively sanitized at the commissary or other approved facility. The requirement for daily cleaning and sanitizing may be waived for those food-contact surfaces which are maintained at all times at a temperature of 40° F (4.4° C) or below or not less than 140° F (60° C), whichever is applicable, and an approved cleaning frequency is followed. Such parts shall, after sanitizing, be protected from contamination.

10-F-7. k. All parts of vending machines which come into direct contact with other than potentially hazardous food shall be thoroughly cleaned by approved methods. The frequency of such cleaning operations shall be established by the medical department based upon the type of product being dispensed. A record of such cleaning operations shall be maintained by the operator in each machine, or shall be made available at the time of inspection, and shall be current for at least the past thirty (30) days.

l. All single-service articles shall be purchased in sanitary cartons or packages which protect the articles from contamination, shall be stored in a clean, dry place until used, and shall be handled in a sanitary manner. Such articles shall be store in the original carton or package in which they are placed at the point of manufacture until introduced in the magazine or dispenser of the vending machine and shall be protected from manual contact, dust, insects, rodents, and other contamination.

8. Delivery of Food, Equipment, and Supplies to Machine Location.

a. Food, while in transit to vending machine locations, shall be protected from contamination. Similar protection shall be provided for single-service containers and for the food-contact surfaces of equipment, containers, and devices in transit to machine locations.

b. Potentially hazardous food, prior to being loaded in the delivery vehicle, shall be maintained at a temperature of 40° F (4.4° C) or below, or not less than 140° F (60° C), whichever is applicable. Such food shall also comply with the applicable temperature requirements while in transit to machine locations. If potentially hazardous food is stored at machine locations, the applicable safe temperatures shall be maintained during storage.

9. Inspection of Vending Machines.

a. The medical department representative shall inspect the servicing, maintenance, and operation of vending machines dispensing potentially hazardous foods as often as deemed necessary, but at least once every month. Vending machines dispensing other than potentially hazardous food may be inspected by the medical department representative as often as deemed necessary.

10-F-8. b. The operator shall make provisions for the medical department representative to have access, either in company with an employee or otherwise, to the interior of all vending machines operated by him/her.

c. Whenever the medical department representative discovers a violation of any provision of this section, he/she shall notify the commanding officer and the operator concerned using the Food Service Establishment Inspection Report Form (CG-5145). Refer to Chapter 11 of this manual regarding the completion of this form.

G. Clubs, Messes, and Exchanges (Food Service Facilities).

1. Clubs and exchanges shall comply with the sanitary standards and regulations prescribed in this manual. The food service manager or supervisor (military or civilian) shall ensure compliance with all sanitation and food service requirements. The supervisor shall maintain close liaison with the command medical officer or medical department representative to ensure the maintenance of high sanitary standards. Clubs, messes, and exchanges shall be inspected at least twice per month by the medical officer or medical department representative in company with the food service manager or supervisor.

2. All food procured by clubs, messes, and exchanges, for CONUS and overseas, shall be from an approved source. Directories can be obtained from the Commanding General (ATTN: Surgeon) of the major army command within whose geographical area the procurement is to be made. Clubs, messes, and exchanges desiring to do business with companies not listed may officially request the cognizant Army Area Commander to have the companies inspected.

3. All meats and meat products, poultry, and seafoods, delivered to clubs and exchanges shall have been inspected by the U.S. Department of Agriculture or personnel of the military veterinary services.

4. When the fitness of any food item appears questionable, the food service manager or supervisor shall request the medical officer or medical department representative to conduct an inspection to determine the fitness for human consumption. If there is any doubt as to its fitness for consumption, the product shall be discarded.

5. All food service personnel shall receive training in accordance with Chapter 12 of this manual. Food Service Training Certificates indicating current training status shall be in the possession of all food service personnel or in the custody of their supervisors.

10-G-6. All food preparation serving and eating utensils (including glassware) shall be cleaned and sanitized in accordance with Section 5-A of this manual. The use of quaternary ammonium or chloramine compounds as sanitizing agents is prohibited.

H. Commercial-Type Convenience Food Operations.

1. Commercial-type convenience food operation is a procedure whereby food intended for use at a future time is prepared, quick frozen, and then stored at 0° F (-18° C) or below.

2. Commercial-type convenience food operations shall comply with the following standards:

a. All relevant requirements of this chapter shall pertain including the total three (3) hour time period for food held between 40° and 140° F (4.4° and 60° C), except the prohibition against freezing cooked protein foods shall not apply.

b. Minimum equipment necessary shall include commercial-type rapid freezers, example - blast freezers.

C Raw food ingredients to be used shall not have been previously frozen.

d. Ground meat or products containing ground meat shall not be used in this type of operation.

e. Authorization for establishing this type of operation or for processing food items not previously authorized shall be obtained from the commanding officer. The medical department shall also be notified to ensure compliance with established sanitary regulations and procedures.

f. All foods prepared in this operation shall be labeled with the date, time of preparation and the activity or processor's name and address.

CHAPTER 11 - INSPECTION COMPLIANCE

A. Inspections.

1. Access. Medical department personnel or other personnel designated by the commanding officer shall be permitted to enter any food service establishment at any time, for the purpose of making inspections to determine compliance with this manual.

2. Frequency of Inspections. The medical department representative or other personnel designated by the commanding officer shall conduct a weekly sanitation inspection of the unit with emphasis on all the food service establishments, to include all food preparation, serving, cleaning, and storage spaces. The inspection report shall be submitted to the commanding officer as soon as practicable and a copy shall be forwarded to the person in charge of the food service establishment.

3. Report of Inspections. Whenever an inspection of a food service establishment is made, the findings shall be recorded on the Food Service Establishment Inspection Report Form (CG-5145). A sample of this form is contained in this chapter. One copy of the form shall be furnished to the person in charge of the establishment. The report form shall set forth the weighted point value for each requirement. The rating score of the establishment shall be the total of the weighted point values for all violations subtracted from one hundred (100).

4. Correction of Violations.

   a. The Food Service Establishment Inspection Report Form (CG-5145) shall specify a reasonable period of time for the correction of the violations found. Correction of the violations shall be accomplished within the period specified, in accordance with the following provisions:

      (1) When the rating score of the establishment is 85 or more, all violations of 1 or 2 point weighted items shall be corrected as soon as possible, but in any event, by the time of the next routine inspection.

      (2) When the rating score of the establishment is at least 70, but not more than 84, all violations of 1 or 2 point weighted items shall be corrected as soon as possible, but in any event, within a period not to exceed five (5) days.

11-A-4. a. (3) Regardless of the rating score of the establishment, all violations of 4 or 5 point weighted items shall be corrected immediately.

(4) When the rating score of the establishment is less than 70, the establishment shall take immediate action to correct the deficiencies. If the rating score has not improved to at least 70 points within twenty-four (24) hours, the establishment shall cease all food service operations.

(5) In the case of temporary food service establishments, all violations shall be corrected within twenty-four (24) hours. If the violations are not corrected, the establishment shall cease all food service operations.

b. Within five (5) days after an inspection in which 4 or 5 point weighted violations were noted, the establishment shall submit a written report to the commanding officer indicating that the 4 or 5 point weighted violations have been corrected. A follow-up inspection shall be conducted to confirm that the corrections have been accomplished.

c. The Food Service Establishment Inspection Report Form (CG-5145) shall state that failure to comply with any time limits for corrections will require that the establishment immediately cease food service operations.

d. Whenever a food service establishment is required under the provisions of this chapter to cease operations, it shall not resume operations until such time as a reinspection determines that conditions responsible for the requirement to cease operations no longer exist. Opportunity for reinspection shall be offered within a reasonable time.

5. <u>Food Service Establishment Inspection Report Form (CG-5145)</u>.

a. Inspections at any unit shall cover sanitary aspects of messes, water supplies, sewage and refuse disposal, disease vectors, occupational hazards, and other environmental factors affecting health and shall ensure the maintenance of established sanitary procedures and standards.

b. The individual conducting the inspection shall immediately inform the commanding officer of any health hazard or gross unsanitary conditions considered dangerous to the unit. Corrective recommendations shall be submitted for review and action by the commanding officer.

11-A-5. c. Written reports of such inspections shall be completed using the Food Service Establishment Inspection Report Form (CG-5145) and shall be furnished to the commanding officer without delay. The report shall present findings of health hazards and deviations from established sanitary standards and procedures and shall furnish recommendations for corrective action.

d. The Food Service Establishment Inspection Report Form (CG-5145) shall be prepared in triplicate and typed or hand written. The original shall be submitted to the commanding officer. The first carbon copy shall be submitted to the officer in charge of the food service establishment which was inspected. The second carbon copy shall be retained by the individual conducting the inspection. The inspection report shall be maintained on file at the unit for a period of two (2) years in accordance with the Paperwork Management Manual (COMDTINST M5212.12(series)).

e. Upon receipt of the inspection report, the officer in charge of the food service establishment shall ensure that all violations are corrected in accordance with the provisions of this manual.

6. Forms Availability. The Food Service Establishment Inspection Report Form (CG-5145) shall be requisitioned from Coast Guard Supply Center Baltimore using stock number 7530-01-GF2-8950, U/I (SH).

DEPARTMENT OF TRANSPORTATION
U. S. COAST GUARD
CG-5145 (2-78)

FOOD SERVICE ESTABLISHMENT INSPECTION REPORT FORM

(Please use reverse side for remarks)

DISTRICT	UNIT NAME AND ADDRESS	DATE

INSTRUCTIONS: Based on an inspection this day, the items marked (X) below identify the violation or operation of facilities which must be corrected by the next routine inspection or such shorter period of time as may be specified in Chapter II of the Food Service Sanitation Manual.

RATING SCORE	SEATING CAPACITY	WATER SUPPLY	SEWAGE DISPOSAL
		1. PUBLIC 2. PRIVATE	1. PUBLIC 2. PRIVATE

TYPE OF INSPECTION

1. GALLEY 2. CLUB 3. OTHER

PURPOSE OF INSPECTION:

1. ROUTINE 2. FOLLOW-UP 3. COMPLAINT 4. INVESTIGATION 5. OTHER

FOOD SERVICE PERSONNEL CERTIFIED:

1. YES 2. NO

FOOD SERVICE PERSONNEL PHYSICALS

1. YES 2. NO

ITEM	X	WT	DESCRIPTION
			FOOD
* 1		5	Source, wholesome
2		1	Original container, properly labeled
			FOOD PROTECTION
* 3		5	Potentially hazardous food meets temperature requirements during storage, preparation, display, service, transport
* 4		4	Facilities to maintain product temperature
* 5		1	Thermometers provided and conspicuous
6		2	Potentially hazardous foods properly thawed
* 7		4	Unwrapped and potentially hazardous food not reserved
8		2	Food protection during storage, preparation, display, service, transportation
9		2	Handling of food (ICE) minimized
10		1	Food (ICE) dispensing utensils properly stored
			PERSONNEL
* 11		5	Personnel with infections restricted
* 12		5	Hands washed and clean, good hygienic practices
13		1	Clean clothes, hair restraints
			FOOD EQUIPMENT AND UTENSILS
14		2	Food (ICE) contact surfaces: designed, constructed, maintained, installed, located
15		1	Non-food contact surfaces: designed, constructed, maintained, installed, located
16		2	Dishwashing facilities: designed, constructed, maintained, installed, located, operated
17		1	Accurate thermometers, chemical test kits provided, gauge cock (1/4" IPS valve)
18		1	Single-service articles, storage dispensing
19		2	No re-use of single-service articles
20		1	Pre-flushed, scraped, soaked
21		2	Wash, rinse water: clean, proper temperature
* 22		4	Sanitization rinse: clean, temperature, concentration
23		1	Wiping cloths: clean, use restricted
24		2	Food-contact surfaces of equipment and utensils clean, free of abrasives and detergents
25		1	Non-food contact surfaces of equipment and utensils clean
26		1	Storage, handling of clean equipment/utensils

ITEM	X	WT	DESCRIPTION
			WATER
* 27		5	Water source, safe: Hot and cold under pressure
			SEWAGE
* 28		4	Sewage and waste water disposal
			PLUMBING
29		1	Installed, maintained
* 30		5	Cross connection, back siphonage, backflow
			TOILET & HANDWASHING FACILITIES
* 31		4	Number, convenient, accessible, designed, installed
32		2	Toilet rooms enclosed, self closing doors, fixtures, good repair, clean; hand cleanser, sanitary towels, hand-drying devices provided, proper waste receptacle
			GARBAGE AND REFUSE DISPOSAL
33		2	Containers or receptacles, covered, adequate number, insect rodent proof, frequency, clean
34		1	Outside storage area, enclosures properly constructed, clean, incineration controlled
			INSECT, RODENT, ANIMAL CONTROL
* 35		4	Presence of insect/rodent: outer openings protected, no dogs, cats, or other animals
			FLOORS, WALLS & CEILINGS
36		1	Floors: constructed, drained, clean, good repair, covering installation, dustless cleaning methods
37		1	Walls, ceiling, attached equipment: constructed, good repair, clean, surfaces, dustless cleaning methods
			LIGHTING
38		1	Lighting provided as required, fixtures shielded
			VENTILATION
39		1	Rooms and equipment vented as required
			DRESSING ROOMS
40		1	Rooms clean, lockers provided, food this clean
			OTHER OPERATIONS
* 41		5	Toxic items properly stored, labeled, used
42		1	Premises maintained, free of litter, unnecessary articles, cleaning maintenance equipment properly stored, authorized personnel
43		1	Complete separation from living sleeping quarters and laundry
44		1	Clean, soiled linen properly stored

* CRITICAL ITEMS REQUIRING IMMEDIATE CORRECTION

DATE OF INSPECTION	RECEIVED BY	INSPECTED BY

SN 7530-01-GF2-8951

11-B. Examination and Condemnation of Food.

1. The medical department representative may examine or sample all food items as often as necessary to determine freedom from adulteration or misbranding. The medical department representative, upon written notice to the Food Service Officer, Food Service Manager or other designated individual in charge of the food service establishment, may place a hold order on any food item which is determined or believed to be unwholesome or otherwise adulterated or misbranded.

2. The medical department representative shall tag, label, or otherwise identify any food subject to the hold order. No food subject to the hold order shall be used, served, or removed from the food service establishment.

3. The medical department representative shall permit storage of the food under the conditions specified in the hold order, unless storage is not possible without posing a health hazard, in which case the commanding officer shall direct immediate destruction of the food items. The destruction shall be accomplished by food service personnel under the supervision of the medical department representative.

C. Procedures When Infection is Suspected.

1. When the medical department representative suspects the possibility of disease transmission from any food service establishment employee, he/she may secure a medical history of the suspected employee or make other investigations as may be indicated and shall take appropriate action. The medical department representative may require any or all of the following measures:

   a. Compliance with the procedures for the preparation and submission of Disease Alert Report (Article 7-B-3, Medical Manual).

   b. The immediate exclusion of the employee from working in all food service establishments.

   c. The immediate closing of the food service establishment concerned until, in the opinion of the medical department representative, no further danger of disease outbreak exists.

   d. Restriction of the employee's services to some area of the establishment where there would be no danger of transmitting disease.

   e. Adequate medical and laboratory examinations of body discharges shall be completed. This examination shall include blood, urine, and stool specimens of all employees in food service establishments.

CHAPTER 12 - FOOD SERVICE SANITATION TRAINING AND CERTIFICATION

A. Training.

1. General. Permanently assigned food service personnel (subsistence specialists, civilian employees, etc.,) shall complete an initial training course in food service sanitation. Annual refresher training is required for all food service personnel to keep abreast of new developments and procedures in food service sanitation.

2. Training Requirements.

   a. Initial Training. All food service personnel, both subsistence specialists and civilians, working in Coast Guard food service establishments shall undergo initial training in food service sanitation. Civilian contract personnel training shall meet the performance-based qualifications of an E-4 subsistence specialist. Documentation of this training shall be kept on file.

   b. Refresher Training. Unit commanding officers shall establish refresher training courses for food service personnel. A minimum of six (6) hours of annual refresher training is required for all permanently assigned food service personnel. This training is to include the topics covered in initial training.

   c. Training Courses Available. Each Maintenance and Logistics Command (MLC) and Commandant (G-KSE-3) can provide upon request an up-to-date list of food-service training courses available. The Navy Environmental and Preventive Medicine Units (NEPMU) provide various short training courses and training videos in all aspects of food service sanitation. Units can utilize these facilities for initial training and refresher requirements for all food service personnel. These courses range in length from 1 to 5 days depending on the course material being presented.

12-A-2. d. NEPMU Locations. The NEPMUs' will, upon request, furnish a consolidated listing of training courses available. This catalog contains a brief description of courses, information about obtaining quotas and a listing of convening dates for each course offered. The following is a listing of the U.S. Navy Environmental and Preventive Medicine Units which offer these courses:

(1) Officer in Charge
Navy Environmental and Preventive Medicine Unit No.2
Norfolk, Virginia 23511

(2) Officer-in-Charge
Navy Environmental and Preventive Medicine Unit No. 5
Naval Station, Box 143
San Diego, California 92136

(3) Officer-in-Charge
Navy Environmental and Preventive Medicine Unit No. 6
Box 112
Pearl Harbor, Hawaii

(4) Officer-in-Charge
Navy Environmental and Preventive Medicine Unit No.7
Box 41 (Naples, Italy)
FPO New York, AE 09521

B. Food Service Sanitation Instructor Training.

1. Requests for instructor training and instructor recertification shall be submitted, via the chain of command, to Commandant (G-PTE).

2. All supervisory personnel who are qualified as food service sanitation instructors shall be recertified every three (3) years.

CHAPTER 13 - FOOD-BORNE ILLNESSES

A. Introduction.

1. Food-borne illnesses can incapacitate more personnel within a short period of time than most other conditions. Epidemiological investigations have shown that more than one-half of all reported outbreaks of food-borne illnesses were the result of gross carelessness and deficiencies in food service sanitation.

2. Although food is usually considered in its relation to the preservation of good health, it may at times be injurious to health. Animal foods (meat and milk) most frequently provide the vehicles for transmission of food-borne illness.

   a. Food can affect health as a result of:

      (1) Natural poisons contained within certain varieties of mushrooms, fish, and shellfish, etc.;

      (2) Animal parasites or their eggs or larvae contained in, or conveyed by foods;

      (3) Bacteria conveyed by both animal and vegetable foods such as typhoid, salmonella, shigellae vacilli, streptococci, etc.;

      (4) Toxins developing in foods as a result of bacterial growth such as staphylococcus enterotoxin and botulinum produced toxin;

      (5) Viruses contained in food and water including the causative agent for Infectious Hepatitis; and Choriomeningitis;

      (6) Poisons accidently or purposely added, such as arsenic, lead, or other metals, acids, or insecticides;

      (7) Amount, too little or too much;

      (8) Composition, an individual's unbalanced diet;

      (9) An individual's faulty digestion or disturbances of metabolism; or,

      (10) An individual's allergy to certain foods.

13-B. Types of Food-Borne Illnesses.

1. Natural Poisons. In addition to the toxins or poisons produced by bacterial growth, certain foods are inherently or naturally poisonous. The poisons in these foods tend to attack the nervous system resulting in such symptoms as weakness or paralysis, numbness, tingling of the ears, apprehension and even death. Naturally poisonous foods include: toadstools, hemlock, mussels (such as those found on the West Coast during the summer), and tropical fish (such as toadfish, puffer fish, certain members of the jackfish family, and in tropical waters at certain seasons of the year, barracuda).

2. Chemical Poisons. Chemical poisoning may be caused by arsenic as residue of spray on fruits or vegetables; or cadmium or zinc dissolved by acid foods such as lemonade, Jello, tomatoes, etc., from cadmium plates or galvanized pitchers or cans; or from exposure of food and food service equipment to insecticides or other chemical products such as cleaning compounds. Chemical poisonings generally are evidenced by violent nausea, vomiting, and diarrhea very shortly after ingestion. Antimony poisoning can be caused from gray-enameled cooking utensils. Copper poisoning can be caused from copper pipes and utensils.

3. Food Intoxication.

   a. Certain bacteria under favorable growth conditions will produce chemical compounds (toxins) in food which when ingested will cause food intoxication. Exterotoxins produced by Staphylococcus aureus are heat stable and the cause of one of the most frequently reported food-borne illness, staphylococcal intoxication. This disease is characterized by abrupt onset (1 to 6 hours, usually 2 to 4 hours) with symptoms of severe nausea, projectile vomiting, diarrhea, and prostration with little or no fever.

   b. The type of food associated with such outbreaks varies considerably. Pork (including ham and salami) and fowl are foods most commonly involved. Ham may become infected with staphylococcus because of the common practice of boning and slicing hours before serving and holding without adequate refrigeration. In addition the highly salted ham permits staphyloçoccus growth but inhibits many other bacteria. Other foods commonly involved are canned or potted meats or fish, pressed tongue, beef, cheese or milk products, cream or custard-filled pastries, potato salad, and macaroni salad. The usual source of the pathogens which cause this form of food intoxication may be the nose and throat, boils, pimples, and infected cuts on the hands of the food service personnel.

10-F. Vending of Foods and Beverage.

1. Vending Machine Location.

a. Each vending machine shall be located where it can be maintained in a clean condition and be protected from overhead leakage or condensation from water, waste, or sewer piping. Each vending machine shall be located so that the space around and under the machine can be easily cleaned and maintained, and so that insect and rodent harborage is not created.

b. The floor area where vending machines are located shall be reasonably smooth, of cleanable construction, and be capable of withstanding repeated washing and scrubbing. This space and the immediate surroundings of each vending machine shall be maintained in a clean condition.

c. Adequate handwashing facilities, including hot and cold or tempered running water, liquid or powdered soap dispensed from appropriate mechanical dispenser and individual towels shall be convenient to the machine location and shall be available for use by employees servicing or loading bulk food machines.

2. Exterior Construction and Maintenance.

a. The vending machine shall be of sturdy construction and the exterior shall be designed, fabricated, finished, and maintained so as to facilitate its being kept clean, and to minimize the entrance of insects or rodents. The exterior shall be kept clean.

b. Door and panel access openings to the food and container storage spaces of the machine shall be tight-fitting, and if necessary, gasketed, so as to prevent the entrance of dust, moisture, insects, or rodents.

C All ventilation louvers or openings into vending machines shall be effectively screened. Screening material shall not be less than 16 mesh to the inch or equivalent. Screening material for openings into condenser units which are separated from food and container storage spaces shall not be less than 8 mesh to the inch or equivalent.

d. In all vending machines in which the condenser unit is an integral part of the machine, such unit, when located below the food and container storage space, shall be separated from such space by a dust proof barrier, and when located above, shall be sealed from such space.

10-F-2. e. Unless the vending machine is sealed to the floor or counter so as to prevent seepage underneath, or can be manually moved with ease, one or more of the following provisions shall be used to facilitate cleaning operations:

(1) The machine shall be mounted on legs six or more inches in height; counter-type machines may use four inch legs; or,

(2) The machine shall be mounted on casters or rollers; or,

(3) The machine shall be mounted on gliders which permit it to be easily moved.

f. All service connections through an exterior wall of the machine (including water, gas, electrical and refrigeration connections) shall be grommeted or closed to prevent the entrance of insects and rodents. All service connections to machines vending potentially hazardous food or food in bulk shall be designed and installed to discourage their unauthorized or unintentional disconnection.

3. Interior Construction and Maintenance.

a. The non-food contact surfaces of the interior of vending machines shall be so designed and constructed as to permit easy cleaning and to facilitate maintenance operations. Inaccessible surfaces or areas shall be minimized.

b. All food contact surfaces of vending machines shall be smooth, in good repair; and, free of breaks, corrosion, open seams, cracks, and chipped places. The design of such surfaces shall preclude routine contact between food and V-type threaded surfaces. All joints and welds in food contact surfaces shall be smooth. All internal angles and corners of such surfaces shall be rounded to facilitate cleaning.

c. All food contact surfaces of vending machines (including containers, pipes, valves, and fittings) shall be constructed of nontoxic, corrosion-resistant, and relatively nonabsorbent materials, and shall be kept clean. In all vending machines in which carbon dioxide is used to propel water, food, or other ingredients, all food contact surfaces in the system shall be of such material that precludes the production of toxic substances which might result from interaction between the carbon dioxide and food contact surfaces.

13-B-3. c. Exotoxins produced by Clostridium botulinum cause a highly publicized but an increasingly rare disease called botulism. This disease, which has a sixty (60) percent mortality rate, is most frequently associated with home canned, low acid foods such as green beans, corn, and similar foods which have been improperly processed. Ingestion of the toxin containing food, frequently as a result of sampling by an individual prior to cooking, leads to nerve paralysis manifested by symptoms of weakness, headaches, dizziness, followed by death due to respiratory or cardiac failure. Cases of botulism have also resulted from improperly prepared commercial products such as vichyssoise soup and smoked ham. Do not taste suspected foods. Home canned foods are not authorized in any Coast Guard dining facility.

4. Food Infection.

a. Food infection is caused by ingestion of food containing such diverse microorganisms as several salmonella and shigella species, Clostridium perfringens, and Vibrio parahaemolyticus. These infections have longer incubation periods than those experienced with food intoxication, usually commencing from six to twenty-four hours or longer after ingestion. Symptoms may include fever, headache, nausea, vomiting, diarrhea, abdominal pain or distress, and prostration. The causative organism may be revealed by laboratory examination of the vomitus and feces.

b. The great majority of these outbreaks are caused by contaminated meat and meat mixtures. Infections due to salmonella are frequently associated with poultry products, particularly turkey; whereas clostridium perfringens is often associated with beef. Vibrio parahemolyticus has been reported as the cause of illness due to the ingestion of improperly prepared shellfish.

C. Preventive Measures.

1. The preventive measures are indicated by sources of infection. Meats and other foodstuffs shall be procured only from approved sources and shall be properly refrigerated as required.

13-C-2. Food, especially meat mixtures, shall not be prepared and set aside to be served at a subsequent meal. The time between the preparation and serving of food shall be reduced to a minimum. If it becomes necessary to hold any food, it shall be put in shallow pans and refrigerated immediately until it is to be served or prepared by serving. Food shall be stored in a refrigerator in a manner that will permit free circulation of air.

3. Experience has proven that it is not good practice to prepare sandwiches containing meat, fish, fowl, or meat products that are to be served several hours after preparation unless the sandwiches can be kept refrigerated. If made from canned meats or meat products, sandwiches shall be prepared only by opening and immediately before serving. If cooked meats are used, the sandwiches shall be prepared in the galley and kept refrigerated.

4. A high standard of sanitation in all food service spaces is essential. The personal hygiene of all food service personnel shall be observed, particularly the washing of hands after visiting restroom facilities. Food service personnel with a communicable disease, or with open lesions, particularly on the face, neck, arms, or hands, shall be prohibited from duty in food service operations. They shall be examined by a medical officer or medical department representative prior to resumption of food service duties. All food service personnel who harbor enteric organisms of the salmonella or dysentery groups shall be excluded from duty in food service establishments until complete recovery. Criteria for recovery shall depend upon three consecutively negative stool cultures. The first culture shall not be taken until all symptoms have subsided and treatment has been terminated. At least twenty-four (24) hours shall elapse between each specimen.

CHAPTER 14 - FOOD-BORNE ILLNESS OUTBREAK PROTOCOL

A. General. In the event of a suspected food-borne outbreak, prompt action must be taken to: identify cases associated with the outbreak; determine the agent causing the outbreak; identify implicated food or beverage items; and determine the factor or combination of factors which permitted the outbreak to occur. Early identification of the agent allows specific treatment of patients. Additional cases can be prevented by halting service or sale of an implicated food item. Future outbreaks can be prevented by modifying or correcting procedures for acquiring, processing and handling the implicated food. Assistance with the investigation may be obtained from the nearest MLC (kse). *Procedures to Investigate Foodborne Illness*, a publication of the International Association of Milk, Food and Environmental Sanitarians, Inc. P.O. Box 702, Ames, Iowa 50010, provides excellent guidelines for conducting an investigation.

B. Investigation Procedures. An investigation is composed of several parts, which often must be accomplished promptly and simultaneously by the person or persons conducting the investigation. Ideally, procedures, materials, personnel and responsibilities for initiating and conducting and investigation should have been developed in advance.

1. Verify the diagnosis. When suspected cases of food-borne illness are reported, the first steps involve verifying the diagnosis of a food-borne disease outbreak.

a. Complete case history questionnaires.

(1) A case history questionnaire must be completed for each ill person. Table 14-I provides an example of this type of questionnaire.

(2) A questionnaire should also be completed for any person who has not been ill, but who may have been exposed to the suspect food item, meal, or facility. These "controls" can include family members, roommates, coworkers, shipmates, and any others at risk of illness who remained well. Comparisons of ill and well persons (e.g., food-specific attack rates) are used to analyze factors contributing to the outbreak.

(3) Case history questionnaires collect information about: the person (name, rate/rank, social security number, residential address or work/berthing assignments, duty station, age, race, sex, and telephone number); their illness,

14-B-1. a. (3) (cont'd) if any (specific symptoms and specific times at which symptoms developed); and food history (when, where and what was eaten, as precisely as possible). The time at which food was eaten and symptoms started must be recorded precisely, e.g., "0100" or "1245." Responsible persons should interview and complete a questionnaire for each person.

b. Obtain clinical specimens. To confirm a diagnosis for most food-borne diseases, laboratory analyses must isolate or identify the etiologic agents in specimens from ill persons. Ideally, specimens should be collected while the patient is ill or when the initial interview is conducted. Specimens collected after the patient recovers may still be useful. If the patient has diarrhea, obtain a stool specimen or rectal swab. If the person is vomiting, collect vomitus. Blood specimens are used to detect antibodies, e.g., hepatitis A, or isolate pathogens, e.g., listeriosis or typhoid fever. Blood and/or urine specimens may also be useful in confirming diagnosis of chemical food poisoning. Contact the laboratory officer at the nearest medical treatment facility or the Maintenance and Logistics Commands for guidance on collecting, storing, and shipping samples for analysis. If the demand for laboratory analyses exceeds the capability of the MTF laboratory, contact the nearest DOD facility. The units maintain a public health laboratory capability to conduct many analyses of clinical specimens from an outbreak investigation or can assist in arranging for appropriate laboratory analyses.

c. Collect food samples and/or containers. If food items are leftover from a suspect meal, or if a commercial product is suspected, collect and preserve samples for laboratory analysis. Remaining stocks of suspect food should not be used until the investigation is complete. Use aseptic techniques and containers to collect samples; seal and label each container. Collect a sample of each item weighing 1/2 to 1 pound (226 to 453 grams) or measuring 1/2 to 1 pint (236-473 ml); if less is available collect all of it. Samples of perishable foods should be chilled and held below 40°F (4°C), but should not be frozen. Commercial foods in containers (e.g., jars or cans) should be kept in those containers. Empty containers of suspect commercial products should also be collected and preserved. Contact the nearest MLC for additional guidance on collecting, storing and shipping samples for analysis.

14-B-2. Develop a case definition. A case definition allows exposed persons to be classified as either cases or non-cases. A case is usually defined by symptoms, e.g., a person who was at risk and developed diarrhea (3 or more loose watery stools within a 24-hour period), and a time frame. Use the data collected during the initial phase of the investigation to establish the definition. A sample of the results of tabulation (clinical characteristics of illness) can be found in table 14-2. A case definition may be specific, e.g., diarrhea and fever (temperature greater than 100.5° F (38° C)), or more general, e.g., diarrhea, nausea or vomiting with or without fever. Cases can be categorized further as confirmed or suspected. A confirmed case meets the case definition and has laboratory evidence of infection (e.g., diarrhea and laboratory isolation of a pathogenic bacteria), while a suspected case meets the case definition but laboratory confirmation is lacking or incomplete (e.g., diarrhea only).

3. Make epidemiologic associations.

a. Although the investigation is not complete, a preliminary assessment of available data helps to confirm that an outbreak has occurred. The investigator needs to decide if two or more persons experienced a similar illness and that the cases are associated by time (e.g., onset within a few hours or days of each other), place (e.g., eating at the same establishment or event and/or person (e.g., eating same foods).

b. If there is an outbreak, develop a hypothesis about the type of illness, possible vehicles of transmission and means by which the vehicle was contaminated. Hypotheses are possible explanations of the outbreak; more investigation and/or more data may be necessary to prove or disprove their role in the outbreak. Table list potential food-borne illnesses, common foods involved in their transmission, common means of contamination, and incubation periods. Decisions on additional investigative efforts (case and control finding, laboratory analyses, etc.) and their priority should be guided by the resulting information's value in providing or disproving the current hypotheses.

c. If available evidence supports a hypothesis on the etiology or method of contamination, it may be appropriate to take or recommend precautionary actions at this time.

14-B-4. Provide information. Keep everyone with a "need to know" informed of the progress and findings to the investigation.

5. Expand the investigation. Often the initial investigation may have identified a pathogen. The investigator may have a plausible hypothesis for the vehicle and its method of contamination. The food service manager may have implemented the recommendations to prevent further illness. It is often tempting to conclude the investigation at this point. Such superficial investigations may underestimate the true number of cases, miss the true method of contamination, and fail to alter potentially hazardous food handling procedures. At this point it is important to find and interview additional persons (both ill and well) at risk. Complete food history questionnaires on both ill and well and obtain clinical specimens from ill persons. It may be appropriate to seek assistance, either consultative support or on-site support, from the nearest MLC.

6. Investigate food handling procedures. The investigation must inquire into the source and method of preparation of each item of food or drink served at a suspected meal. Although a standard inspection may be conducted, and investigation focusing on high risk foods and their handling may be more productive. A flow chart documenting the individual steps from delivery, through preparation, to service of highly suspect items may be helpful. Talk with the food service officer(s), manager(s) and shift supervisors. Collect menus, recipes, and lists of personnel with their assignments. Separately interview food service personnel involved in handling the suspect item(s). Food service personnel should have a physical examination and specimens should be collected (e.g., stool sample or rectal swab), if appropriate.

7. Upon completion of the epidemiological questionnaire, the analysis of the data can be undertaken.

   a. The foremost question before the investigator at this time is, "What was the probable nature and etiological agent of the illness?" To answer this question (epidemiologically), it is necessary to determine the distribution of times of onset in persons who were ill; and assuming that the illnesses were caused by some item of food consumed at the mess, to make a tabulation of incubation period, grouped by appropriate intervals (i.e. 2-hour intervals). From this table the median incubation period could be estimated.

14-B-7. b. From the questionnaire, select the individuals who were ill and list them, as shown in the sample in Table 14-3, with their incubation period, i.e.; the time interval between eating the suspect meal and the onset of symptoms. From Table 14-3, a tabulation of incubation periods, grouped by 2-hour intervals, as shown in the sample in Table 14-5, can be easily arranged.

c. Sample Tables 14-3 and 14-4 are presented here with numbers inserted to illustrate the method.

d. Using the number of ill patients as totaled in Table 14-4 as the denominator and the sum of the incubation periods in hours as listed in Table 14-3 as the numerator, this division then gives the average (or mean) incubation period.

e.

$$\frac{\text{Sum of the incubation periods from Table 14-3}}{\text{Number of ill patients listed in Table 14-4}} = \text{AVERAGE INCUBATION TIME IN HOURS}$$

f. The mean or average incubation time determined by the investigator can now be compared with the incubation times and a probable etiology selected. At this time many agents causing food-borne illness can be ruled out because their incubation times differ considerably from that revealed by the data collected for the outbreak under investigation.

g. The information contained in Table 14-4 is compatible with a diagnosis of staphylococcus food intoxication. These factors are

(1) Sudden onset of symptoms;

(2) The incubation periods starting at 1 hour and extending to the 6-8 hour interval at the highest incidence (the median was between 6 and 7 hours) and then dropping sharply; and,

(3) A morbidity that did not extend beyond 24 hours.

h. Table 14-6 contains a listing of incubation times for various etiological agents.

14-B-7. i. The most frequent and important causes of food-borne illnesses resulting in epidemic gastroenteritis are chemicals, bacterial enterotoxins (staphylococcal), ingestion of toxic plant or animal substances (such as poisonous mushrooms), and ingestion of foods contaminated with shigella or salmonella organisms.

j. Now that the investigator has an epidemiological fix on the etiological agent, the question is, "What was the common vehicle which contained the etiological agent?" In other words, "What food (assuming that an item from the mess was responsible) caused this outbreak?" TO DETERMINE THIS, IT IS NECESSARY TO ANALYZE THE OCCURRENCE OF GASTROENTERITIS IN RELATION TO THE VARIOUS FOODS CONSUMED.

k. The investigator's next step is to prepare a table of attack rates according to the foods consumed. See Table 14-5 for an example of this method, note again that the figures are filled *only to illustrate the method*. In constructing Table 14-5 the figures that the investigator would use in the columns for total number and total ill, and for persons exposed for each food item would be counted from the epidemiological questionnaire, an example of which was shown in Table 14-2.

l. The figures for percentage ill for persons exposed are computed by:

(1) $\frac{\text{Number ill who ate the food item}}{\text{Total number who ate the food item}} \times 100 = \%\ \text{ill}$

(2) Take the example of potato salad - $\frac{192}{246} \times 100 = 78\%$

(3) The figures for percentage ill for persons not exposed are similarly computed by:

(a) $\frac{\text{Number ill who did not eat the food item}}{\text{Total number who did not eat the food item}} \times 100 = \%\ \text{ill}$

(b) Again take the example of potato salad: $\frac{4}{58} \times 100 = 6.9\%$

14-B-7. m. In the tabulated sample, 246 persons ate the potato salad and 192 became ill, giving an attack rate of 78.0 percent the highest of any food item. A look at the control side of Table 14-5, shows that from the group of persons who were not exposed, i.e., those who did not eat the particular food item, 58 persons did not eat the potato salad. From this group only 4 persons were ill, giving an attack rate of only 6.9 percent, which was considerably less than for any of the other foods.

n. These epidemiological data, as collected and analyzed, suggest that the etiology was due to the enterotoxin of staphylococcus being produced in the food item, potato salad. Any medical department representative should be able too apply this epidemiological procedures to any outbreak of food-borne illness.

C. Disease Alert Reports (RCN 6000-4).

1. The medical department representative shall inform the commanding officer of any unusual incidence of disease or the occurrence of any quarantineable disease or other disease of epidemic potentialities.

2. In every outbreak of a communicable disease the medical department shall endeavor to determine the source and mode of spread of the infectious agent, requesting through official channels, specially qualified assistance whenever needed.

3. Disease Alert Reports shall be prepared and submitted to Commandant (G-KOM) by message, utilizing the procedures and format outlined in Article 7-B-3 of COMDTINST M6000.1 (series), Medical Manual.

4. Progress reports shall be submitted as required to keep addresses of the initial report fully informed of diagnostic developments, progress of an outbreak, preventive measures invoked, changes of diagnosis, and other action taken. Progress reports shall normally be submitted by the same means as the initial report. No particular time interval is specified.

5. Final reports shall be submitted to Commandant (G-KOM) upon termination of any outbreak of infectious disease that has been previously reported by message. The primary purpose of this report is to provide a comprehensive history of the outbreak. This report shall include such data as requested in Article 7-B-3 of the Medical Manual.

TABLE 14-1 - CASE HISTORY QUESTIONNAIRE

NAME _____ GRADE/RATE _____ SOCIAL SECURITY NO. _____

RESIDENTIAL ADDRESS _____ TELEPHONE NO. _____

DUTY STATION _____ TELEPHONE NO. _____

AGE _____ SEX _____

Did the individual eat the suspected meal? ___yes ____no
If YES, date and time food eaten: _____
Did the individual become ill? ___ yes____ no
If YES, date and time of onset of symptoms: _____
Below is a list of foods and beverages served at the suspected meal. (check only those which were eaten.)

FOOD	ITEM

Which of the following symptoms did the individual have, and how long (in hours) did they last? (check only those symptoms experienced)

Nausea _____
Vomiting_____
Diarrhea_____
Prostration_____

Fever (how high?)_____
Cramps_____
Other (specify)_____

Did individual seek medical care? _____yes _____no
If YES, medical officer's/physician's/ address, and/or medical activity:_____
Name and address of hospital:_____

_____
Date

_____
Investigator

Table 14-2 - Clinical Characteristics of Illness

TABLES FOR DETERMINING SOURCES OF FOOD-BORNE ILLNESSES

Signs of Symptoms	No. of Patients	% Experiencing
Diarrhea		100 %
Tenesmus		95 %
Blood in Stool		75 %
Fever		75 %
Elevated WBC		60 %
WBC's in Stool		55 %
Nausea		40 %
Anorexia		40 %
Other		

TABLE 14-3 - INCUBATION TIMES

Patient's name*	Incubation in hours** (onset time)
1. John Q. DOE	8.00
2. Richard L. SMOKE	3.00
3. Joseph S. RAGHMAN	7.00
4.	4.75
5.	4.75
6.	12.25
7.	4.50
8.	1.70
9.	4.00
10.	4.00
11.	7.00
12.	3.20
13.	3.75
14.	6.00
15.	7.50
16.	6.00
17.	12.66
18.	7.50
19.	14.00
20.	2.00
21.	3.50
22.	6.00
23.	6.50
Total 23 cases	139.56

* These names are used as examples; however, all names shall be listed.

** Determined by the difference in time as recorded after each name.

TABLE 14-4 - INCUBATION ONSET TIME - NUMBER OF CASES

Incubation (onset) time grouped by 2 hour intervals	Number of cases
First 2 hours	1
2d-4th	5
4th-6th**	5*
6th-8th	8
8th-10th	1
10th-12th	0
12th-14th	2
14th-16th	1
Total	23

* Determined by the difference in time as recorded after each name on Table II.

** Average (or mean) incubation time.

ATTACK RATES ACCORDING TO FOOD ITEMS CONSUMED

Table 14-5

Item of Food	Persons exposed (those who ate the food item)			Persons not exposed (those who did not eat the food item)		
	Total	Number ill	Percent ill	Total	Number ill	Percent ill
Potato Salad	246	192	78.0	58	4	6.9
Tomatoes	253	127	50.2	51	19	37.3
Ice Cream	201	98	48.8	103	48	46.6
Beans	258	129	50.0	46	17	37.0
Ham	230	108	47.0	74	38	51.4
Crab Cake	235	124	52.8	69	22	31.9

Table 14-6 - Table of Diseases

Name	Etiologic Agent	Foods usually involved	Incubation Time (Onset of Symptoms)
		FOODBORNE INTOXICATION	
Staphylococcus Food Poisoning	Several Enterotoxins of *Staphylococcus aureus*	Pastries, custards, salad dressings, meat, meat products	30 minutes to 7 hours, usually 2 to 4 hours
Botulism	Toxins produced by *Clostridium botulinum* types A, B and E rarely F and G	Home canned vegetables, fruits, meats, baked potatoes, potpies, usually low acid or alkaline	12 to 36 hours, sometimes several days
Clostridium perfringens Food Poisoning	Toxins elaborated by Type A and C strains of *Clostridium perfringens*	Meats, stews, meat pies, gravies made of beef, turkey or chicken	6 to 24 hours, usually 10 to 12 hours
Vibrio parahaemolyticus Food Poisoning	Enterotoxins and hemolysis (responsible for a hemolytic reaction, the "kenagawa phenomenon") of *Vibrio parahaemolyticus*	Seafood, any food cross-contaminated with raw seafood, food rinsed with contaminated sea water.	4 to 96 hours, usually 12 to 24 hours
Bacillus cereus Food Poisoning	Two enterotoxins of *Bacillus cereus*, one heat stable causing vomiting and one heat labile causing diarrhea	Rice (such as fried rice), vegetables and meat dishes	1 to 6 hours where vomiting is the symptom, 6 to 16 hours where diarrhea is the predominant symptom
		FOODBORNE INFECTIONS	
Viral Hepatitis A (Infectious Hepatitis)	Hepatitis A virus	Contaminated water and food, including milk, sliced meats, salads, and raw or undercooked mollusks	15 to 50 days, average 28 to 30 days
Epidemic Viral Gastroenteropathy (Norwalk type disease)	Norwalk virus, adenoviruses, astroviruses, caliciviruses, coronavirus, and others	Clams, oysters, cockles green salads, pastry, and frostings	24 to 48 hours, range 10 to 51 hours
Salmonellosis	Numerous serotypes of Salmonella, e.g., *S. enteritidis*, *S. typhimurium*	Raw (especially cracked) eggs, egg products, raw milk and products, meat and meat products, poultry, pet turtles and chicks.	6 to 72 hours, usually 12 to 36 hours
Typhoid Fever	*Salmonella typhi*	Food or water contaminated by feces or urine of a patient or carrier. Shellfish from sewage contaminated water. Flies can infect foods.	Usually 1 to 3 weeks

Table 14-6 - Table of Diseases (cont'd)

Shigellosis (Bacillary dysentery)	Four species or subgenera of Shigella, e.g., *S. dysenteriae, S. flexneri, S. boydii and S. sonnei*. They are divided into groups A, B, C, and D and some 40 serotypes identified by arabic numbers.	Food or water contaminated by feces from a patient or carrier. Any direct or indirect fecal-oral transmission from a patient or carrier. Water, milk, cockroach and fly-borne transmission may occur from direct fecal contamination.	1 to 7 days, usually 1 to 3 days
Diarrhea caused by campylobacteria (Campylobacter enteritis, Vibrionic enteritis)	*Campylobacter jejuni (C. fetus* subsp. jujuni) and *C. coli*. A diversity of biotypes and serotypes occur.	Food or unpasteurized milk or water. Contact with infected pets (especially puppies and kittens), wild animals, or infected infants; and possibly food cross-contaminated with these sources	1 to 10 days, usually 3 to 5 days
Brucellosis (Undulant fever, Malta fever)	*Brucella abortus*, biotypes 1 to 7 and 9; *B. melitensis*, biotypes 1 to 3; *B. suis*, biotypes 1 to 4; and *B. canis*	Raw milk, dairy products (cheese) from infected animals. Contact with infected animals or their tissues, blood, urine, vaginal discharges, aborted fetuses, and placentas	Usually 5 to 30 days, occasionally several months
Leptospirosis (Weil's disease, Hemorrhagic jaundice)	Leptospira interrogans species which is subdivided into more than 170 serovars. Commonly identified serovars in the U.S. are icterohaemorrhagiae, canicola, autumnalis, and hebdomidis.	Food contaminated with urine of infected rats. Abraded skin or mucous membrane contact with water moist soil or vegetation contaminated with urine of infected animals.	4 to 19 days, usually 10 days
Streptococcal Diseases caused by Group A (Beta Hemolytic) Streptococci (Streptococcal sore throat)	*Streptococcus pyogenes*. Group A has about 75 serologically distinct types. Occasionally groups B, C, and G can produce disease.	Milk, milk products, egg salad, deviled hard boiled eggs	1 to 3 days, rarely longer
Tuberculosis (TB), Bovine	*Mycobacterium bovis*	Raw unpasteurized milk or dairy products	About 4 to 12 weeks, the risk of infection remains greatest for 1 to 2 years after infection. Risk may persist for lifetime as a latent infection.
Tularemia (Rabbit Fever)	*Francisella tularensis*	Insufficiently cooked rabbit or hare meat; contaminated water	2 to 10 days, usually 3 days
Q Fever (Query Fever)	*Coxiella burnetii*	Raw milk from infected cows	Usually 2 to 3 weeks
Listerosis	*Listeria monocytogenes* from soil, manure and silage	Inadequate cooking, failure to properly pasteurize milk, prolonged refrigeration	3 to 21 days maybe longer

Yersiniosis	*Yersinia enterocolitica, Y. pseudotuberculosis*	Inadequate cooking, contamination after pasteurization, contamination of foods by water, rodents, other animals	24 to 36 hours
FOODBORNE PARASITIC INFECTIONS			
Amebiasis	*Entamoeba histolytica*	Contaminated raw vegetables; contaminated water	A few days to several months or years. Commonly 2 to 4 weeks
Trichinosis (Trichiniasis, Trichinellosis)	*Trichinella spiralis*	Raw or insufficiently cooked flesh of animals; animals containing viable encysted larvae, chiefly pork and pork products, and beef products adulterated with raw pork	5 to 45 days, usually 10 to 14 days
Taeniasis due to Taenia Solium Intestinal Form (Pork Tapeworm)	*Taenia solium*	Raw or uncooked infected pork	8 to 12 weeks
Cysticercosis (Infection by *Taenia solium* cystericercus)	*Taenia solium*	Food or water contaminated with the eggs of Taenia solium	A few months to 30 years
Taenia saginata Infection (Beef Tapeworm)	*Taenia saginata*	Raw or undercooked beef	10 to 14 weeks
Diphyllobothriasis (Broad or Fish Tapeworm infection)	*Diphyllobothrium latum*	Raw or inadequately cooked fresh water fish	3 to 6 weeks
Anisakiasis	Larval nematodes of the family Anisakidae, including the genera Anisakis, Phocanema, Contracaecum, and Terranova	Inadequately treated (frozen, salted, smoked) salt water fish or squid	Gastric symptoms within 4 to 6 hours of ingestion. Symptoms referable to the small and large bowel within a few days or weeks.
CHEMICALS			
Chinese Restaurant Syndrome	Monosodium glutamate	Food containing large quantities (5 gms) of MSG	Few minutes to 1 hour
Arsenic Poisoning	Insecticides and rodenticides	Unwashed fruits and vegetables	1 hour or less
Fluoride Poisoning	Insecticides and rodenticides	Accidentally contaminated foods such as dry milk, flour, baking powder, cake mixes	Few minutes to 2 hours
Antimony Poisoning	Antimony in gray enamelware	High-acid foods and beverages	Few minutes to 1 hour

Lead Poisoning	Lead in earthenware vessels, pesticides, paint, plaster, putty, soldered joints	High-acid foods and beverages stored in lead-containing vessels, any accidentally contaminated food	30 minutes or longer
Copper Poisoning	Copper in pipes and utensils	High-acid foods and beverages	Few minutes to a few hours
Cyanide Poisoning	Metal polishes (Silver polishes) containing cyanide	Food accidentally contaminated with detarnishers	2 hours or less
Zinc Poisoning	Zinc in galvanized containers	High-acid foods and beverages stored in galvanized containers	Few minutes to a few hours
Organophosphorous Poisoning	Organic phosphorous insecticides, e.g., parathion, TEPP, diazinon, malathion	Any accidentally contaminated food	Few minutes to a few hours
		NATURAL POISONS	
Mushroom Poisoning	Muscarine group of mushrooms	Eating Muscarine group of mushrooms, eating unknown varieties, mistaking toxic mushrooms for edible types.	15 minutes to 2 hours
Mushroom Poisoning	Gastrointestinal irritating group of mushrooms	Many varieties of wild mushrooms.	30 minutes to 2 hours
Mushroom Poisoning	Cyclopeptides and gyromitrin in some mushrooms	Certain species of Amanita, Galerina, and Gyromitra mushrooms.	6 to 24 hours
Paralytic/Neurologic Shellfish Poisoning	Saxitoxin and similar toxins from dinoflagellates Protogonaulas and Gymnodinium species	Shellfish from waters with high concentration of Protogonalulax or Gymnodinium species (Red Tide)	Few minutes to 30 minutes
Diarrhetic Shellfish Poisoning	Okadaic acid and other toxins produced by dinoflagellates *Dinophyses acuminata* and *D. forti*	Shellfish from waters with high concentration of Dinophyses.	1/2 hour to 12 hours, usually 4 hours
Ciguatera Poisoning	Ciguatoxin in intestines, roe, gonads, and flesh of tropical marine fish	Liver, intestines, roe, gonads, or flesh of tropical reef fish; usually large reef fish are more commonly toxic	3 to 5 hours
Water Hemlock Poisoning	Resin and cicutoxin in hemlock root	Root of water hemlock *Cicuta uirosa, C. maculata, and C. douglarii*. May be mistaken for wild parsnip, sweet potato, or carrot.	15 to 60 minutes
Jimsonweed Poisoning	Tropane alkaloids	Any part of plant, tomatoes grafted to Jimsonweed root stock.	Less than 1 hour
Solanine Poisoning	Solanine	Potato sprouts.	1 hour or less

SAFETY PRECAUTIONS FOR FOOD SERVICE PERSONNEL

1. The correct way to do a job is the safe way. Safety should be part of your everyday food service operation.

2. Electrical appliances of any kind shall not be handled when feet or hands are wet.

3. Electrical extension cords shall be used with extreme care and avoided if at all possible. When damage or fraying occurs, or abnormal circumstances are observed, cords should be checked out by a qualified electrician.

4. Proper hand tools will be used to remove nails, metal straps, and wire bands when opening containers and boxes. Care shall be exercised to avoid getting foreign matter into foodstuffs.

5. Knives and cleavers shall be used only for the purpose intended. Do not use a knife as a screwdriver. A cleaver shall not be used to open cans, crates, or boxes.

6. Do not open cans with anything except a can opener. Remove cover completely as the jagged edge may cause a serious cut. Keep blade and gears of can opener clean so tin will not be ground into foods.

7. Do not carry knives unnecessarily. If a knife must be carried, hold it by the handle with its point toward the deck and the cutting edge away from you. Hold knife close and walk carefully.

8. Do not grab for a falling knife. Step to one side and let it fall.

9. Do not soak or put knives in soapy or discolored water, as they cannot be seen and you may grasp the blade.

10. Place knives in drawers, cabinets, and racks with the handle facing outward.

11. Keep the handles of all meat tools free of grease to assure a good, safe grip, otherwise, your hand may slip forward onto the blade. Hold handles firmly.

12. When using a sharpening stone, be sure your guiding hand rides on the back of the knife blade.

14. Remove all tools before placing meat on blocks or benches. The "hidden" tool is dangerous. If you put a piece of meat on top of a sharp knife, you may forget the knife is there and cut yourself when you pick up the meat.

15. Be extremely careful when using a boning knife. Always keep your hand behind the knife. Use a hand meat hook when boning meat to provide a firmhold. Wear a mail apron for stomach protection.

16. Be careful when using the cleaver. The chopping action is difficult to control. Keep your other hand away from the striking area. Wear a mail glove to protect fingers of holding hand.

17. After using and sanitizing, return tools such as cleavers, saws, and knives to place provided for them. Reduce the risk of cutting yourself by storing them properly.

18. When using a hand saw, do not force the saw blade. Forcing it through a bone may cause it to "jump" and tear your fingers. Let the saw do the work. As an added precaution, always place your index finger over the back of the blade.

19. Wear a mail glove in dangerous butchering or meat cutting operations to prevent hand injuries.

20. Safety devices and guards shall be in proper place, in proper operating condition, and securely fastened when food choppers, meat slicers, or mechanical meat saws are in operation.

21. Instruct all food service personnel in the lighting-of characteristics of galley ranges. The doors of gas or oil-fired ovens shall be opened at least one minute prior to lighting. Report all leaking valves or joints immediately.

22. Turn handles of cooking utensils parallel to the front of the range; they shall not protrude into passageways.

23. Report all defective galley equipment such as stove lids, oven doors, pilot lights, thermostats, electrical appliances, pan handles, etc., immediately.

24. Be careful of sharp pointed meat hooks in the chill box and refrigerator(s). Do not use them in the galley as hooks for hanging up utensils.

25. Test alarm systems on walk-in refrigerators daily and report any malfunction immediately to the food service establishment supervisor.

26. Do not block approaches to fire fighting equipment.

27. Accumulations of grease and soot on ranges, ducts, and filters in range hoods shall be cleaned at frequent intervals as a fire prevention measure. Grease filters in range hoods must be in place at all times while range is in use.

28. At least one fifteen (15) pound CO2 or six (6) pound cartridge type dry chemical fire extinguisher shall be maintained in an easily accessible location near each galley range.

29. Keep decks as clean and dry as possible. They shall be kept free from spilled food, grease, and other substances. Precautions must be taken to avoid swabbing or scrubbing deck areas that are in use. Limit cleaning to a small area, then swab this area dry before proceeding. Do not wet the entire deck at one time.

30. Flat bottom trucks or any other type of food conveyor shall not be left unattended in aisles, corridors, passageways, or any place where they may become a tripping or collision hazard or an obstruction to normal work functions.

31. Keep supply rooms in an orderly condition at all times.

    a. Keep aisles clear.

    b. Food items in all spaces shall be placed on pallets or gratings to permit easy cleaning and to facilitate air circulation.

    c. Do not attempt to lift heavy objects without sufficient help.

32. Keep garbage sheds or screened enclosures clean at all times:

    a. Do not permit accumulations of refuse from day-to-day.

    b. Do not attempt to handle large, filled garbage containers alone; get help.

    c. Use caution when cleaning containers with a steam hose. Be sure the nozzle of the steam hose is securely fastened before turning steam into the hose. Cover hands with cloth or wear gloves when handling a steam line. Horseplay with a steam line is prohibited.

    d. Maintain wire screened enclosures in good condition to prevent entrance of insects and rodents.

33. Insecticides, rodenticides, poisonous chemicals, and detergents shall be plainly labeled and segregated from foodstuffs and food service equipment.

34. Obtain immediate first aid for scratches and cuts. This is the safest, surest way of preventing infections.

35. Do not carry pencils, pens, combs, cigarettes or other tobacco products, matches, or other items in shirt pockets, breast pockets of coats or jackets, caps, hats, or behind the ears.

36. The use of hands to force food products into food choppers is prohibited. Use a pusher-stick.

37. Before removing containers of hot liquids from the range, be sure that no one is passing. Decide in advance where you are going to put such containers.

38. Handle pots or pans containing hot liquids or grease with great care.

39. Assume that all pots, pans, stoves, steam tables, coffee urns, and pipes are hot before touching them.

40. Use extreme care when working around steam cookers and coffee urns. Stand to one side when opening steam kettles, steam cabinets, and ovens. Use a safe, non-collapsible platform to stand on when pouring hot water into the coffee bag at the top or urn.

41. Cover hands with a dry cloth before handling hot containers or before opening steam vessels or roasters. Wet cloths transmit heat readily and may cause burns.

42. Do not have deep-fat pans more than two-thirds to three-fourths full of hot fat. Unless due allowance is made, the roll or pitch of a vessel may splash fat onto the range and cause a serious fire and bad burns. Do not leave deep-fat fryers unattended.

43. Immediately repair splintery work tables, faulty mess benches, sharp metal edges, loose handles, or other defective equipment immediately.

44. When lifting heavy boxes, bend your knees to distribute the weight.

45. Do not climb ladders with food or utensils unless you can hold onto a guard rail with one hand. Make another trip if necessary, or get someone to help you.

46. Food trays and other serving equipment shall not be loaded and carried in such a manner as to obstruct your vision.

47. Hot liquid containers shall be filled and carried on serving equipment so that liquid will not spill on you or the persons you may be serving. Hot liquid containers aboard vessels underway shall be placed in secure position at all times.

48. Do not leave glassware or glass containers near food preparation areas. If glass should break near foodstuffs, immediately notify the commanding officer of the food service establishment so that a decision can be made regarding the food suitability.

49. Do not use broken, cracked, or chipped glassware or china.

50. Do not throw broken glass into waste baskets or other refuse containers within the facility that can cause harm or injury to other personnel.

51. Wash hands thoroughly with soap and water before leaving toilets. Report unsanitary toilet or washroom conditions to the food service establishment supervisor and/or medical department.

52. All food service personnel shall wear safety toe shoes with a strong support and closed toe.

53. Food service personnel working with grinder and mixers shall not wear loose shirt sleeves, ties, or aprons.

54. **Most accidents are due to one cause -- inattention. Do not take chances. Concentrate on what you are doing and be safe.**

TABLE V To Produce an Initial 100 ppm (100 mg/l) Chlorine Concentration

System Capacity (Gal)	0.25% Stock Solution	2.0% Stock Solution	Calcium Hypochlorite (HTH)70%	Chlorinated Lime 25%	Sodium Hypochlorite 5%	Sodium Hypochlorite 10%
5	1 pt., 10 oz.	3.2 oz.	0.1 oz.	0.3 oz.	1.3 oz.	0.7 oz.
10	1 qt., 1 pt	6.4 oz.	0.2 oz.	0.6 oz.	2.6 oz.	1.3 oz.
25	1 gal.	1 pt.	0.5 oz.	1.4 oz.	6.4 oz.	3.2 oz.
50	2 gal.	1 qt.	1.0 oz.	2.7 oz.	13.0 oz.	6.4 oz.
100	4 gal.	2 qt.	1.9 oz.	5.4 oz.	1pt.,10.0oz.	13.0 oz.
200	8 gal.	1 gal.	3.8 oz.	11.0 oz.	1 qt., 1 0t.	2 pt.
500	20 gal.	2 gal., 2 qt.	10.0 oz.	1 lb.,11.0 oz.	1 gal.	2 qt.
1000		5 gal.	1 lb., 3.0 oz.	3 lb., 5.0 oz.	2 gal.	1 gal.
2000		10 gal.	2 lb., 6.0 oz.	6 lb., 11.0 oz.	4 gal.	2 gal.
5000		25 gal.	12 lb.	32 lb.	20 gal.	10 gal.

*U.S. G.P.O.:1993-343-273:80255

CHLORINE SOLUTIONS

1. Preparation of Chlorine Solutions. The manufacturer's instructions may specify that a particular type of chlorine solution should be used in their equipment. However, any of the following solutions may be used, if properly prepared.

   a. Sodium Hypochlorite - Sodium hypochlorite requires no preparation. It should be used directly as it comes from the container.

   b. Chlorinated Lime - Place the proper amount of chlorinated lime in a clear dry container. Add a small amount of water and mix with the chlorinated lime to form a thick paste. Dilute the paste gradually adding water (warm water is better than cold water). Stir the solution constantly after the chlorinated lime is dissolved, allow the solution to stand for thirty (30) minutes so that the undissolved residue can settle to the bottom. Carefully pour off the clear liquid and discard the residue. (If the liquid remains turbid, filter it through muslin or several layers of cheesecloth).

   c. Calcium Hypochlorite - Place the proper amount of calcium hypochlorite in a clean dry container. Add water and stir until the powder is dissolved. Allow the solution to stand for a few minutes so that any undissolved particles can settle to the bottom. Pour off the clear liquid and discard the residue. (Any slight turbidity in the water may be disregarded).

2. Chlorine Solution Preparation Tables.

   a. The tables listed in this enclosure show the amount of each common chlorine compound or solution to add to water to produce the most commonly used chlorine concentrations. These tables show the amounts needed to produce a specific initial chlorine concentration. The amount of chlorine which will remain after a given time depends on the amount of organic matter and other foreign material in the water. The actual amount of chlorine present can be determined only by sampling and testing the water.

   b. Preparation of stock solutions:

      (1) To prepare a nominal 0.25% stock solution of chlorine, add: 0.5 oz. (15 grams) (1 heaping tablespoon) of high test calcium hypochlorite or 1.3 oz. (40 grams) (3 heaping tablespoons) of chlorinated lime to one (1) gallon (3.8 L) of water.

2. b. (2) To prepare a nominal 2% stock solution of chlorine, add: 3.8 oz. (118 grams)(2/3 cup or 8 heaping tablespoons) of high test calcium hypochlorite or 11 oz. (342 grams)(2 cups or 22 heaping tablespoons) of chlorinated lime to one (1) gallon (3.8 L) of water.

3. Chlorination Tables. The following tables give the amount of each stock solution or chlorine compound to be added to water to produce an initial chlorine concentration of 1, 2, 5, 50 and 100 parts per million (PPM). The quantities of 0.25% and 2.0% stock solution and sodium hypochlorite listed in the tables are given in U.S. Liquid Measure (fluid ounces, pints, quarts, and gallons). The quantities of calcium hypochlorite and chlorinated lime listed are given in Avoirdupois Weight (ounces and pounds).

TABLE I To Produce an Initial 1 ppm (1 mg/l) Chlorine Concentration

System Capacity (Gal)	0.25% Stock Solution	2.0% Stock Solution	Calcium Hypochlorite (HTH)70%	Chlorinated Lime 25%	Sodium Hypochlorite 5%	Sodium Hypochlorite 10%
5	0.3 oz.					
10	0.5 oz.	0.1				
25	1.3 oz.	0.2 oz.			0.1 oz.	
50	2.6 oz.	0.3 oz.			0.2 oz.	0.1 oz.
100	5.1 oz.	0.7 oz.			0.3 oz.	0.2 oz.
200	10.0 oz	1.3 oz		0.1 oz.	0.5 oz.	0.3 oz.
500	1 pt., 10 oz.	3.2 oz.	0.1 oz.	0.3 oz.	1.3 oz.	0.7 oz.
1000	1 qt.,1 pt. 3 oz.	6.4 oz.	0.2 oz.	0.6 oz.	2.6 oz.	1.3 oz.
2000	3 qt.,6oz.	13.0 oz.	0.4 oz.	1.1 oz.	5.2 oz.	2.6 oz.
5000	2 gal.	1 qt.	1.0	2.7 oz.	13.0 oz.	6.4 oz.

TABLE II To Produce an Initial 2 ppm (2 mg/l) Chlorine Concentration

System Capacity (Gal)	0.25% Stock Solution	2.0% Stock Solution	Calcium Hypochlorite (HTH)70%	Chlorinated Lime 25%	Sodium Hypochlorite 5%	Sodium Hypochlorite 10%
5	0.5 oz.					
10	1.1 oz.	0.1 oz.				
25	2.6 oz	0.3 oz.			0.2 oz.	
50	5.1 oz.	0.7 oz.			0.3 oz.	0.2 oz.
100	11.0 oz.	1.3 oz.		0.1 oz.	0.5 oz.	0.3 oz.
200	1 pt.,5 oz.	2.6 oz.	0.1 oz.	0.5 oz.	1.0 oz.	0.5 oz.
500	1 qt.,1 pt.,3 oz.	6.4 oz.	0.2 oz.	1.1 oz.	2.6 oz.	1.3 oz.
1000	3 qt.,6 oz.	13.0 oz.	0.4 oz.	0.2 oz.	5.1 oz.	2.6 oz.
2000	1 gal.,2 qt.,1 pt.	1 pt., 10 oz.	0.8 oz.	2.1 oz.	10.0 oz.	5.1 oz.
5000	4 gal.	2 qt.	1.9 oz.	5.3 oz.	1 pt.,10.0 oz.	13.0 oz.
10,000	8 gal.	1 gal.	3.8 oz.	11.0 oz.	1 qt., 1.0 oz.	2 pt.

TABLE III To Produce an Initial 5 ppm (5 mg/l) Chlorine Concentration

System Capacity (Gal)	0.25% Stock Solution	2.0% Stock Solution	Calcium Hypochlorite (HTH)70%	Chlorinated Lime 25%	Sodium Hypochlorite 5%	Sodium Hypochlorite 10%
5	1.3 oz.	0.2 oz.				
10	2.6 oz.	0.3 oz.			0.1 oz.	
25	6.4 oz.	0.8 oz.		0.1 oz.	0.3 oz.	0.2 oz.
50	13.0 oz.	1.6 oz.		0.2 oz.	0.7 oz.	0.3 oz.
100	1 pt.,10 oz.	3.2 oz.	0.2 oz.	0.3 oz.	1.3 oz.	0.7 oz.
200	1 qt.,1pt., 3 oz.	6.4 oz.	0.2 oz.	0.6 oz.	2.6 oz.	1.3 oz.
500	1 gal.	1 pt.	0.5 oz.	1.4 oz.	6.4 oz.	3.2 oz.
1000	2 gal.	1 qt.	1.0 oz.	2.7 oz.	13.0 oz.	6.4 oz.
2000	4 gal., 2 qt.	2 qt.	1.9 oz.	5.4 oz.	1 pt.,10.0 oz.	13.0 oz.
5000	10 gal.	1 gal., 1 qt.	4.8 oz.	13.0 oz.	2 qt.	1 qt.
10,000	20 gal.	2 gal., 2 qt.	9.6 oz.	1 lb.,11.0 oz	1 gal.	2 qt.

TABLE IV To Produce an Initial 50 ppm (50 mg/l) Chlorine Concentration

System Capacity (Gal)	0.25% Stock Solution	2.0% Stock Solution	Calcium Hypochlorite (HTH)70%	Chlorinated Lime 25%	Sodium Hypochlorite 5%	Sodium Hypochlorite 10%
5	13.0 oz.	1.6 oz.		0.2 oz.	0.7 oz.	0.3 oz.
10	1 pt., 10 oz.	3.2 oz.	0.1 oz.	0.3 oz.	1.3 oz.	0.7 oz.
25	2 qt.	8.4 oz.	0.3 oz.	0.7 oz.	3.2 oz.	1.6 oz.
50	1 gal.	1 pt.	0.5 oz.	1.4 oz.	6.4 oz.	3.2 oz.
100	2 gal.	1 qt.	1.0 oz.	2.7 oz.	13.0 oz.	6.4 oz.
200	4 gal.	2 qt.	1.9 oz.	5.4 oz.	1pt.,10.0 oz.	13.0 oz.
500	10 gal.	1 gal., 1 qt.	4.8 oz.	13.0 oz.	2 qt.	1 qt.
1000	20 gal.	2 gal., 2 qt.	10.0 oz.	1 lb., 11.0 oz.	1 gal.	2 qt.
2000		5 gal.	1 lb.,3.0 oz.	3 lb., 5.0 oz.	2 gal.	1 gal.
5000		12 gal., 2 qt	3 lb.	8 lb., 6.0 oz.	5 gal.	2 gal.
10,000		25 gal.	6 lb	17 lb.	10 gal.	5 gal.