LESSON ASSIGNMENT

LESSON 5	Food Service Sanitation in the Field.
LESSON ASSIGNMENT	Paragraph 5-1 through 5-4.
LESSON OBJECTIVES	After completing this lesson, you should be able to:

5-1. Match a list of terms related to food service sanitation with a list of corresponding definition.

5-2. Select from a list of organism those that most often cause food-borne illnesses.

5-3. Identify the five sources of food contamination in the field.

5-4. Describe sanitary practices in food handling.

LESSON 5

FOOD SERVICE SANITATION IN THE FIELD

5-1. TERMS AND DEFINITIONS

a. **Contamination.** The unintended presence of harmful substances or organisms in food.

b. **Spoilage.** The breakdown in the edible quality of food.

c. **Potentially Hazardous Foods (PHFs).** Foods that support the rapid growth of bacteria, which may cause disease or produce toxins.

d. **Temperature Danger Zone.** The temperature range most conducive to bacteria growth and reproduction (between 41° and 139°F).

e. **Cleaning.** Physical removal of soil and food particles.

f. **Sanitizing.** Reduction of microorganisms by chemical or physical means.

g. **Food-Contact Surface.** Surface of utensils or equipment that normally come in contact with food.

h. **Cross-contamination.** Transfer of harmful microorganisms from one food item to another.

i. **Calibration.** Adjusting equipment to maintain accuracy.

5-2. FOOD-BORNE ILLNESS

a. Any source of food can become contaminated if proper food handling practices are not observed. Food handlers must maintain the highest sanitation standards to help prevent disease transmission.

b. Using improper or unsanitary practices when dealing with food can cause it to become contaminated with disease-causing microorganisms resulting in an outbreak of food-borne disease. There are 5 bacteria that cause most of the reported food- borne illnesses.

(1) Campylobacter jejuni.

(2) Escherichia coli.

(3) Listeria monocytogenes.

(4) Salmonella.

(5) Staphylococcus. Staph infection is most often caused by the poor hygiene practices of food handlers.

NOTE: The hygiene and sanitation standards for food service personnel are found in Chapter 3 of TB MED 530, Occupational and Environmental Health Food Service Sanitation.

5-3. SOURCES OF FOOD CONTAMINATION

a. In the field, there are basically five sources of food contamination.

(1) Biological hazards. These exist when harmful microorganisms can contaminate food, usually through improper practices in food handling.

(2) Chemical hazards. These exist when harmful substances, such as cleaning solutions, sanitizers or toxic metals are introduced into food. This is usually an accidental or unintentional occurrence.

(3) Physical hazards. These exist when foreign particles such as glass, metal particles, bone or insects become mixed into food products through inadequate food protection.

(4) Cross-contamination. This can happen if raw meat, or raw meat particles, comes in contact with cooked meat on a preparation table.

(5) Unsafe food handling practices. Food-borne disease outbreaks can be attributed to the following unsafe food handling practices.

(a) Failure to refrigerate cold potentially hazardous foods (PHFs) or maintain them at temperatures below 40 degrees Fahrenheit.

(b) Failure to maintain hot PHFs at 140 degrees Fahrenheit or above.

(c) Not protecting foods from contamination and or cross-contamination.

(d) Improper food transportation and storage practices.

(e) Improper procedures and practices of food handlers.

b. It is important to remember that any food classified as a potentially hazardous food (PHF) furnishes a very good medium for harmful microorganisms to grow. Meats, dairy, and poultry are especially hazardous; as are many salads, chopped meats and

sandwich fillings due to the special handling they require during preparation and the combination of potentially hazardous foods.

NOTE: Field Sanitation Team members do not have to memorize every standard and regulation, but need to be aware of factors that contribute to food-borne disease outbreaks. The best way to control these factors is through proper supervisory action.

5-4. SANITARY PRACTICES IN FOOD HANDLING

The conditions present when food is prepared, stored, transported and served can have a direct bearing on the success or failure of a unit's mission.

a. **Preparing Food.** The temperature range for the temperature danger zone is from 41° to 139°F. More than likely, food products may have to be in the danger zone during some phases of preparation, but this time must be minimized as much as possible. During preparation, potentially hazardous foods can accumulate a total of four hours in the danger zone and not be a health hazard. After four hours, enough bacteria may have grown to cause disease and the food should be discarded.

(1) Food service personnel need to plan meals that reduce the amount of food waste. In garrison, some foods may be kept as leftovers. In the field, potentially hazardous foods cannot be retained.

(2) As food service personnel prepare meals, they need to coordinate their work to avoid any unnecessary lapses of time between the preparation and serving of food. To the extent possible, food that is done should be served immediately. This helps reduce the possibility of food contamination.

(3) Potentially hazardous foods that can't be served promptly after being prepared should be placed immediately in a refrigerator.

(a) If the food cannot be served or refrigerated immediately after preparation, as in the case of box lunches, PHFs should be avoided altogether.

(b) If there is no means to refrigerate food, B rations, MREs and T rations will be the only foods served.

(c) Once a T ration has been opened, it can not be kept as a leftover. If the tray has been heated but not opened, it can be kept and reheated one time. If it's reheated and still not used, it must be thrown away even if it hasn't been opened.

(4) Fresh fruit and vegetables need to be cleaned and disinfected. Wash fresh fruits and vegetables in clean, potable water and disinfect them using an approved food service disinfectant.

(a) If food service disinfectant is not available, fruits and vegetables can be soaked in a 100 parts per million total chlorine solution for one minute, or they can be immersed in 140 degree water for one minute.

NOTE: Prepare the chlorine solution by mixing one tablespoon of liquid bleach (sodium hypochlorite 3-5%) with one gallon of potable water.

(b) There are some fruits and berries, like strawberries, that cannot be properly washed or disinfected. Therefore, they should not be served or eaten raw outside of the United States.

b. **Storing food.** It is important to note that foods containing enough microorganisms to cause food-borne disease do not necessarily have any changes in odor, taste or appearance. For this reason, the temperature of the foods should always be checked using a thermometer.

(1) Preventing food contamination. To prevent contamination of food supplies from pests, such as mice, rats, flies and other arthropods, good sanitation and exclusion practices, (that is storage in the proper containers), work best. However, if you need to use pesticides, use them only when absolutely necessary and only in accordance with the label instructions.

(2) Safe product temperatures. It is of the utmost importance that safe product temperatures be maintained. Failure to do this is the leading cause of food-borne disease outbreaks. Food or food products requiring refrigeration should be stored at 40° Fahrenheit or below.

(3) Food storage chest. Every unit with food preparation capabilities is issued an ice chest with a two hundred pound capacity. The internal temperature of any potentially hazardous food stored in the ice chest must not exceed 40° Fahrenheit.

(4) Semi-perishable foods, such as potatoes and onions, should be kept in a dry area and on pallets to allow air to circulate around them.

(5) Unwrapped food or food products can be stored in boxes but should be covered first to protect them from dust.

(6) Dry food items such as flour, sugar, coffee-creamer and rice should be kept in their original packaging. When transfer to other packaging is necessary, they should be placed in metal containers that have been lined with clean, disposable food-grade plastic liners. The lids should fit tightly and the containers should be protected from heat and moisture. Improper storage can result in product deterioration or infestation by insects and rodents.

(7) Acidic foods such as potato salad, tomato juice, lemonade or other citrus drinks must never be stored in galvanized containers. The acid can dissolve the zinc coating, which can cause metal poisoning.

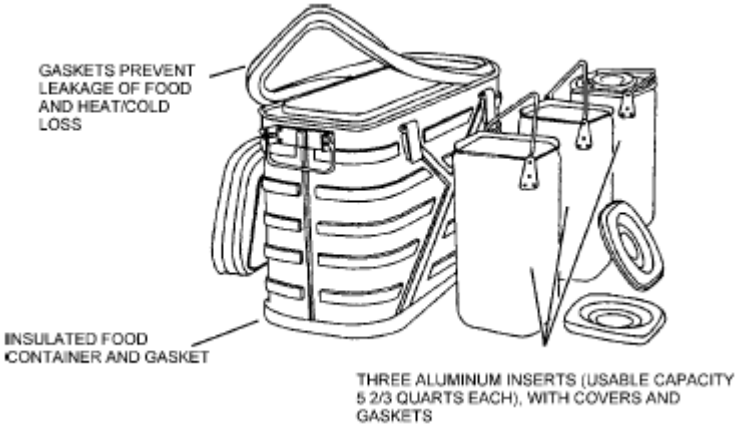
c. **Transporting Food.** Whether you're moving food from the ration point to the unit or from the field kitchen to the troops, great care must be taken to avoid providing an environment for microorganisms or other substances to contaminate the food.

(1) Vehicles used for transporting food must be completely enclosed. If they have been used for transporting garbage, trash or petroleum products, they should not be used to transport food until they have been properly cleaned.

(2) Every unit should have clean tarps, boxes or bags available to further protect food from contamination.

(3) Transporting potentially hazardous foods to troops away from the food service facility requires the use of insulated food containers (IFC). Whether you are transporting hot or cold food, using these containers correctly will help maintain safe product temperatures.

(a) Label the container with the common name of the food, the time it was packaged and the internal temperature of the food at the time it was packed.



(b) Potentially hazardous food will be consumed within four hours from the time when the IFC is filled.

(c) Serving utensils that are sent with the container should be covered to prevent contamination.

(d) Disposable food service gloves should be provided.

d. **Serving food.** The condition of the dining facility and its staff can be primary sources of food contamination and disease.

(1) Purpose for inspection. Food service operations are inspected for three reasons.

(a) First, to identify basic defects that could cause or spread communicable diseases.

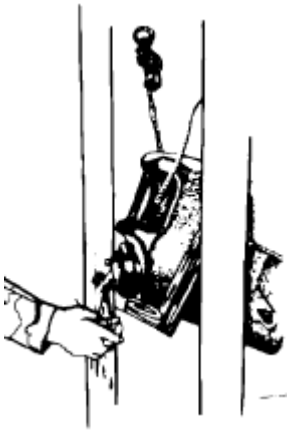
(b) Second, to recommend corrective actions.

(c) Third, to give assistance to unit food service personnel in understanding the importance of effective sanitation practices.

(2) General procedure. Perform the following general inspection to ensure compliance by food handlers in food service facility practices.

(a) Ensure that the unit is inspecting all food it receives at the time of delivery or pick-up. Food service personnel must inspect food immediately upon receipt. If they suspect any food is unfit for human consumption, they should contact the veterinary unit or their unit surgeon for instructions. Perishable foods should only be stocked according to the unit's ability to store them properly.

(b) Conduct a brief visual inspection of the facility to ensure that all food sanitation principles and practices are being followed.

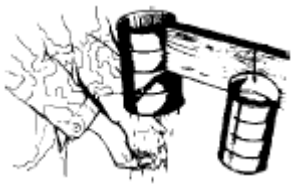


(c) Ensure that all prepared foods are being maintained at the proper temperatures. That is, 40°F or below for cold foods and 140°F or above for hot foods. This also applies to food that is sent to troops at remote sites.

(d) The NCOIC of the dining facility should check the facility for proper equipment prior to using it for food service.

(e) Ensure an adequate supply of food service gloves and aprons are on hand.

(f) There must be a hand-washing device for the food handlers. It must be conveniently located near the food preparation area and must be monitored to ensure it is provided with soap and water as well as paper towels.



(3) The NCOIC of the dining facility must inspect the food handlers at the start of each shift, every day.

(a) The focus of this inspection should be to insure that all food handlers are practicing good personal hygiene and verify that they're not sick with a communicable illness.

(b) Camouflage paint, while essential to survival in combat, is not good for humans if eaten. To reduce the chance of food contamination, food handlers are not permitted to have this on their face, hands or arms while they are preparing food, washing or sanitizing food equipment or performing KP duties.

(c) Food service personnel who are sick should report to sick call and be returned to kitchen duty only when the medical authority determines they are fit.

(4) Regardless of the type of food you are storing, it may become contaminated even if it is packaged according to the guidelines we've discussed. Here are some additional precautions you can take to prevent food contamination and spoilage.

NOTE: When in doubt, contact the supporting Veterinary Services unit to make a determination on food quality.

(a) Keep food protected from the elements (sun, rain, freezing temperatures).

(b) If at all possible, avoid storing food in excessive heat or moisture.

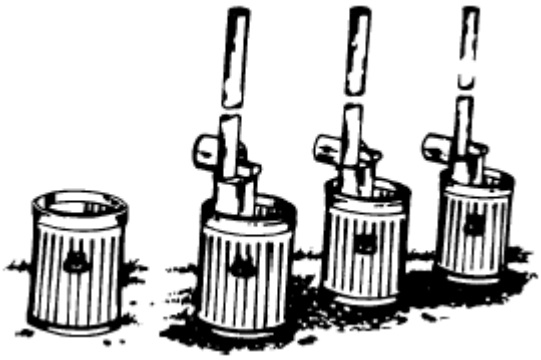
(c) Carefully observe all expiration dates on foods. Be sure to dispose of food when the expiration date has passed.

e. **Cleaning and Sanitizing Utensils.** To avoid the transfer of disease organisms from food contact surfaces to food items, cooking utensils should be washed, rinsed and properly stored after each use. Use one of the following methods to clean and sanitize utensils.

(1) <u>The mess kit laundry</u>. The mess kit laundry is a field expedient method used for washing and sanitizing dishes. It may also be used for sanitizing and pre-heating individual mess kits prior to serving food. Mess kits have been replaced with disposable plates and flatware, but the mess kit laundry is still an essential means to clean cooking utensils. The main components are four 32-gallon galvanized trash containers.

(a) The first can is a waste can for food scraps.

(b) The second is a wash can of soapy water heated to between 120° and 150°F. Use a long handled brush to wash the dishes.



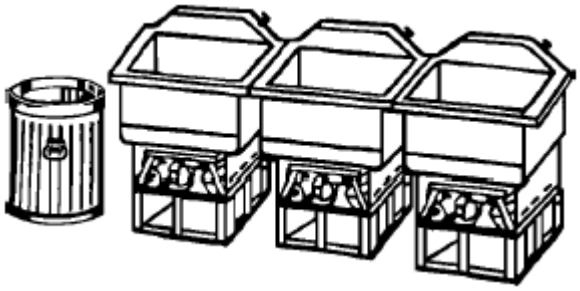
(c) The third can in the mess kit laundry contains clear, boiling water and is used to rinse the soap off the dishes. Dip the items in the boiling water a few times and shake off the excess.

(d) The fourth can also contains clear boiling water and is used for sanitizing. Dip the items for at least 10 seconds shake off the excess water and let them air-dry.

NOTE: When it is impossible to heat the water, use a sanitizing solution in the fourth container. If possible, use food service disinfectant as specified on the label. Other alternatives are to mix three MRE spoonfuls of calcium hypochlorite powder for each ten gallons of water or one canteen cup of three to five percent liquid chlorine bleach for each 32 gallons of water.

(2) The Food Sanitation Center (FSC). Another method for cleaning and sanitizing eating and cooking utensils is the food sanitation center, or FSC. The food sanitation center consists of four sink assemblies. Each sink includes a base with burner racks that can hold either M2 burners or the new Modern Burner Units (MBU).

(a) The steps for using the FSC are exactly the same as those for using the mess kit laundry.



(b) The FSC is used with the modular field kitchen or the trailer mounted field kitchen. It is portable and can be set up or prepared for movement by four soldiers within 30 minutes.

f. **The food service thermometer.** Only an approved food service thermometer may be used for determining the temperature of food. The thermometer should have a metal stem, and a numerically scaled or digital display. It should have the capability of being calibrated and accurate to within ±2°F.

NOTE: Bimetallic dial thermometers are available and can be ordered from unit supply. NSN 6685-00-444-6500.

WARNING: Thermometers containing mercury can not be used and should never come in contact with food or food-contact surfaces.

(1) Using the food service thermometer. Proper use of the thermometer ensures the most accurate reading.

(a) Wash your hands prior to handling the thermometer.

(b) Sanitize the thermometer with alcohol or a chlorine solution.

(c) Push the stem into the thickest part of the food, wait for the needle to stop moving.

(d) Note the reading.

(2) Calibration of the food service thermometer. Periodic calibration of the thermometer is required to ensure accuracy. The calibrate the stem-type thermometer use one of the following methods:

(a) Ice point method. First, insert the stem into a 50/50 ice and water slush and wait for the needle to stabilize. Note the reading. If the thermometer does not read exactly 32º F then, using a wrench or pliers, adjust the calibration nut by turning it clockwise or counterclockwise until the indicator reads 32°F.

(b) Boiling point method. First, insert the stem into boiling water and wait for the needle to stabilize. Note the reading. If the thermometer does not read exactly 212º F then, using a wrench or pliers, adjust the calibration nut by turning it clockwise or counterclockwise until the indicator reads 212°F.