

U.S. Public Health Service

**Centers for Disease Control
and Prevention**

National Center for Environmental Health



**Vessel Sanitation Program
Operations Manual**

2005 Final Draft



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Forward

The Centers for Disease Control and Prevention (CDC) established the Vessel Sanitation Program (VSP) in the 1970's as a cooperative activity with the cruise ship industry. The program assists the cruise ship industry in fulfilling its responsibility for developing and implementing comprehensive sanitation programs in order to minimize the risk of gastrointestinal diseases. Every vessel that has a foreign itinerary and carries 13 or more passengers is subject to twice-yearly inspections and, when necessary, reinspection.

The VSP operated continuously at all major U.S. ports from the early 1970's through 1986, when CDC terminated portions of the program. Industry and public pressures resulted in Congress directing CDC through specific language included in CDC appropriations to resume the VSP. The National Center for Environmental Health (NCEH) at CDC became responsible for the VSP in 1986.

The NCEH held a series of public meetings to determine the needs and desires of the public and cruise ship industry and on March 1, 1987, a restructured program began. In 1988, the program was further modified by introducing user fees to reimburse the U.S. government for costs. A fee based on the vessel's size is charged for inspections and reinspections. A *VSP Operations Manual* based on the FDA 1976 model code for food service and the World Health Organization's *Guide to Ship Sanitation* was published in 1989 to assist the cruise ship industry in educating shipboard personnel.

In 1998, it became apparent that it was time to update the 1989 version of the *VSP Operations Manual*. Changes in the FDA *Food Code*, new science on food safety and protection, and newer technology in the cruise ship industry contributed to the need for a revised Operations Manual. During the 2 years following, the VSP solicited comments from and conducted public meetings with representatives of the cruise industry, general public, FDA and international public health community to ensure that the 2000 manual would appropriately address current public health issues related to cruise ship sanitation.

Although the previous VSP Operations Manual was in use for 5 years, we have seen new technology, advanced food science, and emerging pathogens which require the manual to be updated. This document represents the comments and corrections submitted by all those cooperative partners in government, private industry, and the public. We would like to thank all those who submitted comments and participated throughout this process.

As new information, technology, and input is received, we will continue to review and record that information and maintain a public process to keep the Manual current.

The *VSP Operations Manual - 2005* continues the 30 year tradition of government and industry working together to achieve a successful and cooperative Vessel Sanitation Program that benefits millions of travelers each year.

Dave Forney, Chief
Vessel Sanitation Program

1.0 Introduction

1.1 Introduction and Background

1.2 Activities

1.3 Operations Manual

1.1 Introduction and Background

1.1.1 Cooperative Activity

1.1.1.1 The Centers for Disease Control and Prevention (CDC) established the Vessel Sanitation Program (VSP) in 1975, as a cooperative activity with the cruise ship industry. This program assists the cruise ship industry in fulfilling its responsibility for developing and implementing comprehensive performance-based systems to protect the health of the traveling public.

1.1.1.2 The program fosters cooperation between the cruise ship industry and government to define and reduce health risks associated with vessels and to ensure a healthful and clean environment for vessels' passengers and crew. The industry's aggressive and ongoing efforts to achieve and maintain high standards of food safety and environmental sanitation are critical to the success of protecting public health.

1.2 Activities

1.2.1 Prevention

1.2.1.1 The VSP conducts a comprehensive food safety and environmental sanitation inspection on vessels that have a foreign itinerary, call on a U.S. port, and carry 13 or more passengers.

1.2.1.2 The program conducts ongoing surveillance of gastrointestinal illness and coordinates / conducts outbreak investigations on vessels.

1.2.2 Information

- 1.2.2.1 The VSP provides food safety and environmental sanitation training seminars for vessel and shore operations management personnel.
- 1.2.2.2 The program provides consultative services for reviewing plans for renovations and new construction.
- 1.2.2.3 The program conducts construction inspections at the shipyards and when the vessel makes its initial call at a U.S. port.
- 1.2.2.4 The program disseminates information to the public.

1.3 Operations Manual

1.3.1 Revisions

- 1.3.1.1 The Operations Manual for the VSP has been modified as a result of emerging public health issues, industry recommendations, introduction of new technologies within the industry, new guidance from sources used in the previous edition, and CDC's experience.
- 1.3.1.2 The program operations and inspections are based on this manual.
- 1.3.1.3 The Operations Manual will be reviewed annually in the public meeting with written submissions for revision based on emerging public health issues and new technologies that may better address the public health issues on vessels.

2.0 Authority

2.1 Public Health Service Act

2.1 Public Health Service Act

2.1.1 Communicable Disease Prevention

2.1.1.1 Although cooperation by vessels with the VSP is voluntary, the Public Health Service (PHS) is authorized by the Public Health Service Act (42 U.S.C. Section 264. Quarantine and Inspection - Regulations to control communicable diseases) to take measures necessary to prevent the introduction, transmission, or spread of communicable diseases into the United States from a foreign country.

2.1.1.2 In addition, the Public Health Service Act (42 U.S.C. Section 269. Quarantine and Inspection - Bills of health.) authorizes the promulgation of regulations applicable to vessels for preventing the introduction into the United States of "any communicable disease by securing the best sanitary condition of such vessels, their cargoes, passengers, and crews."

2.1.1.3 Regulations promulgated to carry out these duties authorize the PHS to conduct sanitary inspections on carriers traveling to a U.S. port from a foreign area (42 CFR Section 71.41. General Provisions. Foreign Quarantine - Requirements Upon Arrival at U.S. Ports: Sanitary Inspection). This purpose of the inspection is to determine the existence of vermin, contaminated food or water, or other insanitary conditions that may contribute to the introduction, spread, or transmission of communicable disease.

3.0 Definitions

3.1 Scope

3.2 Definitions

3.1 Scope

3.1.1 Definitions provided in the Operations Manual are provided to clarify terminology commonly used in public health.

3.1.2 The terms defined are shown in relation to Operations Manual chapters where they are used, but they may also pertain to other chapters in this manual.

3.2 Definitions

Authority

"USPHS or PHS" means the U.S. Public Health Service.

Potable Water

"Air-break" means a piping arrangement in which a drain from a fixture, appliance, or device discharges indirectly into another fixture, receptacle, or interceptor at a point below the flood-level rim.

"Air-gap" means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other device and the flood-level rim of the receptacle or receiving fixture. The air gap must be at least twice the diameter of the supply pipe or faucet or at least 3 cm **25 mm** (1 inch), whichever is greater.

"Atmospheric vacuum breaker" means an approved backflow prevention device that is necessary on a potable water outlet designed for an attachment that does not have a shutoff downstream from the attachment to preclude the possibility of backflow. Means an approved backflow prevention plumbing device utilized on potable water lines where shut-off valves do not exist downstream from the device. The device is not approved for use when it is installed in a manner that will cause it to be under continuous water pressure. An atmospheric vacuum breaker must be installed at least 152 mm (6 inches) above the flood level rim of the fixture or container to which it is supplying water.

"Backflow" means the flow of water or other liquids, mixtures, or substance into the distribution pipes of a potable supply of water from any source or sources other than the source of potable water supply. Back-siphonage is one form of backflow.

"Backflow, check, or non-return valve" means a mechanical device installed in a waste line to prevent the reversal of flow under conditions of back pressure. In the check valve type, the flap should swing into a recess when the line is flowing full, to preclude obstructing the flow.

"Backflow preventer" ~~means an approved backflow prevention device that is necessary on a potable water outlet~~ means an approved backflow prevention plumbing device that must be used on potable water distribution lines where there is a direct connection or a potential connection between the potable water distribution system and other liquids, mixtures, or substances from any source other than the potable water supply. Some devices are designed for use under continuous water pressure, whereas others are non-pressure types. To ensure proper protection of the water supply, a thorough review of the water system shall be made to confirm that the appropriate device is selected for each specific application. The VSP only accepts vented devices.

"Back-siphonage" means the flowing back of used, contaminated, or polluted water from a plumbing fixture or vessel or other source into a water supply pipe as a result of negative pressure in the pipe.

"Black water" ~~means wastewater from water closets (toilets).~~ means waste from toilets, urinals, medical sinks, and other similar facilities.

"Cross-connection" ~~means any physical connection between two otherwise separate piping systems that allows a flow from one system to the other.~~ means any unprotected actual or potential connection or structural arrangement between a public or a consumer's potable water system and any other source or system through which it is possible to introduce into any part of the potable system, any used water, industrial fluid, gas, or substance other than the intended potable water with which the system is supplied. Bypass arrangements, jumper connection, removable section, swivel or change-over devices, and other temporary or permanent devices which or because of which backflow can occur are considered to be cross-connections.

"Gray water" ~~means all domestic wastewater including water from showers, sinks, laundry, and equipment drains, but not wastewater from toilets.~~ means all water including drainage from galleys, dishwashers, showers, laundries, and bath and washbasin drains. It does not include black water or bilge water from the machinery spaces.

"Halogen" means the group of elements including fluorine, chlorine, bromine, and iodine used for the disinfection of water.

"Harbor area" means that portion of a harbor set aside for vessel anchorage or for ports including wharves, piers, quays, and service areas, the boundaries are the high-water shore line, and others as determined by legal definition, citation of coordinates, or other means.

"Hose connection vacuum breaker" ~~means an approved backflow preventer that attaches directly to a hose bib, has a single check with an atmospheric vent and is not designed for continuous pressure applications.~~ Means an approved backflow prevention plumbing device that attaches directly to a hose bib by way of a threaded head.

This device uses a single check valve and vacuum breaker vent. It is not approved for use under continuous pressure (when a shut-off valve is located downstream from the device)

"mg/L" means milligrams per liter, which is the metric equivalent of parts per million (ppm).

"Non-potable fresh water" (Technical water) means fresh water intended for laundry use or for washing decks in areas other than the vessel's hospital or food service and food storage areas. means fresh water that may or may not be halogenated, but is intended for use in technical and other areas where potable water is not required (laundries, engine room, toilets and waste-treatment areas, and for washing decks in areas other than the vessel's hospital, food service, preparation, or storage areas).

"Pollution" means the presence in water of any foreign substance (organic, inorganic, radiologic, or biologic) that tends to degrade water quality to create a health hazard.

"Potable water" means fresh water intended for drinking, washing, bathing, or showering; for use in freshwater swimming pools and whirlpool spas; for use in the vessel's hospital; for handling, preparing, or cooking food; and for cleaning food storage and preparation areas, utensils, and equipment.

"Potable water tanks" ~~means all tanks into which potable water is bunkered or produced for distribution and from which it is used as potable water.~~ means all tanks in which potable water is stored from bunkering and production for distribution and use as potable water.

~~"Reduced pressure backflow preventer" means an approved backflow device used in high hazard situations that has two independent check valves with an intermediate vacuum breaker and relief valve.~~ "Reduced pressure principle backflow prevention assembly (RP Assembly)" means an assembly containing two independently acting approved check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and at the same time below the first check valve. The unit shall include properly located resilient seated test cocks and tightly closing resilient seated shutoff valves at each end of the assembly.

"Sewage" means any liquid waste containing animal or vegetable matter in suspension or solution, including liquids containing chemicals in solution.

"Specialty backflow preventer" means an approved backflow device used in low hazard situations that has two independent check valves with an intermediate vacuum breaker and relief valve.

"Spa Pool" means a fresh or saltwater supplied pool with water temperatures and turbulence comparable to a whirlpool spa, but a water depth and volume more comparable to a pool (ie. 30-40 °C or 86-104 °F, bubbling or jetted water effects which physically break at the water surface, depth over 1 m (3 feet), shape is normally non-circular, and volume exceeds 6 tons of water).

"Technical water" means fresh water NOT intended for 1) drinking, washing, bathing, or showering; 2) use in the vessels's hospital; 3) handling, preparing, or cooking food; and 4) cleaning food storage and preparation areas, utensils, and equipment.

Food Safety

Additive.

(a) "**Food additive**" has the meaning stated in the Federal Food, Drug, and Cosmetic Act, §201(s) and 21 CFR 170.

(b) "**Color additive**" has the meaning stated in the Federal Food, Drug, and Cosmetic Act, §201(t) and 21 CFR 70.

"Accessible" means capable of being exposed for cleaning and inspection with the use of simple tools such as a screwdriver, pliers, or an open-end wrench.

"**Adulterated**" has the meaning stated in the Federal Food, Drug, and Cosmetic Act, §402.

"**Approved**" means acceptable to the VSP based on a determination of conformity with principles, practices, and generally recognized standards that protect public health such as ANSI/NSF standards, ASSE standards, federal regulations or equivalent international standards and regulations.

"**a_w**" means water activity which measures the free moisture in a food. It is the quotient of the water vapor pressure of the substance divided by the vapor pressure of pure water at the same temperature.

"**Beverage**" means a liquid for drinking, including water.

"Blast Chiller" means a unit specifically designed for rapid intermediate chilling of food products from 60 °C (140 °F) to 21 °C (70 °F) within two hours and 21 °C (70 °F) to 5 °C (41 °F) within an additional 4 hours.

"Coved" means a concave surface, molding, or other design that eliminates the usual angles of 90 degrees or less.

"**Bottled drinking water**" means water that is sealed in bottles, packages, or other containers and offered for sale and that is safe for human consumption, including bottled mineral water.

"**Certification number**" means a unique combination of letters and numbers assigned by a shellfish-control authority to a molluscan shellfish dealer according to the provisions of the National Shellfish Sanitation Program.

"**CIP**" means cleaned in place by circulating or flowing mechanically through a piping system of a detergent solution, water rinse, and sanitizing solution onto or over equipment surfaces that require cleaning, such as the method used, in part, to clean and sanitize a frozen dessert machine.

"CIP" does not include the cleaning of EQUIPMENT such as band saws, slicers, or mixers that are subjected to in-place manual cleaning without the use of a CIP system.

"**CFR**" means Code of Federal Regulations. Citations in this Code to the CFR refer sequentially to the Title, Part, and Section numbers, such as 21 CFR 178.1010 refers to Title 21, Part 178, Section 1010.

"**Code of Federal Regulations**" means the compilation of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government which:

(a) Is published annually by the U.S. Government Printing Office; and

(b) Contains FDA rules in 21 CFR, USDA rules in 7 CFR and 9 CFR, EPA rules in 40 CFR, and Wildlife and Fisheries rules in 50 CFR.

"**Comminuted**" means reduced in size by methods including chopping, flaking, grinding, or mincing.

"**Comminuted**" includes fish or meat products that are reduced in size and restructured or reformulated such as gefilte fish, gyros, ground beef, and sausage; and a mixture of 2 or more types of meat that have been reduced in size and combined, such as sausages made from 2 or more meats.

"**Confirmed disease outbreak**" means a foodborne or waterborne disease outbreak in which laboratory analysis of appropriate specimens identifies a causative agent and epidemiologic analysis implicates the food or water as the source of the illness.

"**Consumer**" means a person who is a member of the public, takes possession of food, is not functioning in the capacity of an operator of a food establishment or food processing plant, and does not offer the food for resale.

"**Corrosion-resistant material**" means a material that maintains acceptable surface cleanability characteristics under prolonged influence of the food to be contacted, the normal use of cleaning compounds and sanitizing solutions, and other conditions of the environment where the material is used.

"**Critical-control point**" means a point or procedure in a specific food system where loss of control may result in an unacceptable health risk.

"**Critical limit**" means the maximum or minimum value at a critical-control point to which a physical, biologic, or chemical parameter must be controlled to minimize the occurrence of risk from an identified food safety hazard.

"**Deck sink**" means a sink recessed into the deck, sized to contain waste liquids from tilting kettles and pans.

"**Disinfection**" means the destruction of all vegetative cells (not spores) in or on inanimate objects.

"**Drinking water**" means water that meets 40 CFR 141 National Primary Drinking Water Regulations.

"**Drinking water**" is traditionally known as "potable water."

"Drinking water" includes the term "water" except where the term used connotes that the water is not potable, such as "boiler water," "mop water," "rainwater," "wastewater," and "nondrinking" water.

"Dry-storage area" means a room or area designated for the storage of packaged or containerized bulk food that is not potentially hazardous and dry goods such as single-service items.

"Easily cleanable" means a characteristic of a surface that:

- (a) Allows effective removal of soil by normal cleaning methods;
- (b) Is dependent on the material, design, construction, and installation of the surface; and
- (c) Varies with the likelihood of the surface's role in introducing pathogenic or toxigenic agents or other contaminants into food based on the surface's approved placement, purpose, and use.

"Easily cleanable" includes a tiered application of the criteria that qualify the surface as easily cleanable as specified under Subparagraph (a) of this definition to different situations in which varying degrees of cleanability are required such as:

- (a) The appropriateness of stainless steel for a food preparation surface, compared with the lack of need for stainless steel to be used for floors or for tables used for consumer dining; or
- (b) The need for a different degree of cleanability for a utilitarian attachment or accessory in the kitchen, compared with a decorative attachment or accessory in the consumer dining area.

"Easily movable" means:

- (a) Portable; mounted on casters, gliders, or rollers; or provided with a mechanical means to safely tilt a unit of equipment for cleaning; and
- (b) Having no utility connection, a utility connection that disconnects quickly, or a flexible utility connection line of sufficient length to allow the equipment to be moved for cleaning of the equipment and adjacent area.

"EPA" means the U.S. Environmental Protection Agency.

"Equipment" means an article used in the operation of a food establishment, such as a freezer, grinder, hood, ice maker, meat block, mixer, oven, reach-in refrigerator, scale, sink, slicer, stove, table, temperature measuring device for ambient air, vending machine, or warewashing machine.

"Equipment" does not include items used for handling or storing large quantities of packaged foods that are received from a supplier in a cased or overwrapped lot, such as hand trucks, forklifts, dollies, pallets, racks, and skids.

"Fish" means fresh or saltwater finfish, crustaceans, and other forms of aquatic life (including alligator, frog, aquatic turtle, jellyfish, sea cucumber, and sea urchin and the roe of such animals) other than birds or mammals, and all mollusks, if such animal life is intended for human consumption.

"Fish" includes an edible human food product derived in whole or in part from fish, including fish that have been processed in any manner.

"Floor sink" [see deck sink](#).

"Food" means a raw, cooked, or processed edible substance, ice, beverage, or ingredient used or intended for use or for sale in whole or in part for human consumption, or chewing gum.

"Foodborne disease outbreak" means an incident in which:

(a) 2 or more nonrelated persons experience a similar illness after ingesting a common food; and

(b) Epidemiologic analysis implicates the food as the source of the illness.

"Foodborne disease outbreak" also includes a single case of illness such as 1 person ill from botulism or chemical poisoning.

"Food-contact surface" means:

(a) A surface of equipment or a utensil with which food normally comes into contact; or

(b) A surface of equipment or a utensil from which food may drain, drip, or splash into a food, or onto a surface normally in contact with food.

"Food employee" means a person working with unpackaged food, food equipment or utensils, or food-contact surfaces.

"Food-processing plant" means a commercial operation that manufactures, packages, labels, or stores food for human consumption and does not provide food directly to a consumer.

"Game animal" means an animal, the products of which are food, that is not classified as cattle, sheep, swine, goat, horse, mule, or other equine in 9 CFR Subchapter A - Mandatory Meat Inspection, Part 301, as Poultry in 9 CFR Subchapter C - Mandatory Poultry Products Inspection, Part 381, or as fish as defined under Subparagraph 1-201.10(B)(25).

"Game animal" includes mammals such as reindeer, elk, deer, antelope, water buffalo, bison, rabbit, squirrel, opossum, raccoon, nutria, or muskrat, and nonaquatic reptiles such as land snakes.

"Game animal" does not include ratites such as ostrich, emu, and rhea.

"Gap" means an open juncture between two materials or equipment components and is generally larger than a seam. See seam.

"**Grade A standards**" means the requirements of the PHS/FDA "Grade A Pasteurized Milk Ordinance" and "Grade A Condensed and Dry Milk Ordinance" with which certain fluid and dry milk and milk products comply.

"**General-use pesticide**" means a pesticide that is not classified by EPA for restricted use as specified in 40 CFR 152.175.

"**HACCP plan**" means a written document that delineates the formal procedures for following the Hazard Analysis Critical Control Point principles developed by The National Advisory Committee on Microbiological Criteria for Foods.

"Hand Antiseptic" means antiseptic products applied to human skin. (replaces the term hand sanitizer)

"**Hazard**" means a biologic, chemical, or physical property that may cause an unacceptable consumer health risk.

"**Hermetically sealed container**" means a container that is designed and intended to be secure against the entry of microorganisms and, in the case of low-acid canned foods, to maintain the commercial sterility of its contents after processing.

"**Imminent health hazard**" means a significant threat or danger to health that is considered to exist when evidence is sufficient to show that a product, practice, circumstance, or event creates a situation that requires immediate correction or cessation of operation to prevent injury based on the number of potential injuries, and the nature, severity, and duration of the anticipated injury.

"**Injected**" means manipulating a meat so that infectious or toxigenic microorganisms may be introduced from its surface to its interior through tenderizing with deep penetration or injecting the meat such as with juices which may be referred to as "injecting," "pinning," or "stitch pumping."

"**Kitchenware**" means food preparation and storage utensils.

"**Law**" means applicable local, state, federal, or other equivalent international statutes, regulations, and ordinances.

"**Linens**" means fabric items such as cloth hampers, cloth napkins, table cloths, wiping cloths, and work garments including cloth gloves.

"**Meat**" means the flesh of animals used as food including the dressed flesh of cattle, swine, sheep, or goats and other edible animals, *except fish, poultry, and wild game animals.*

"**Molluscan shellfish**" means any edible species of fresh or frozen oysters, clams, mussels, and scallops or edible portions thereof, *except when the scallop product consists only of the shucked adductor muscle.*

"**Packaged**" means bottled, canned, cartoned, securely bagged, or securely wrapped, whether packaged in a food establishment or a food-processing plant.

"Packaged" does not include a wrapper, carry-out box, or other nondurable container used to containerize food to facilitate food protection during service and receipt of the food by the consumer.

"Person in charge" means the individual present on a vessel who is responsible for the food operation at the time of inspection such as the Food and Beverage Manager, Food Manager, or Chef.

"Personal-care items" means items or substances that may be poisonous, toxic, or a source of contamination and are used to maintain or enhance a person's health, hygiene, or appearance.

"Personal-care items" include items such as medicines; first aid supplies; and other items such as cosmetics, and toiletries such as toothpaste and mouthwash.

"pH" means the symbol for the negative logarithm of the hydrogen ion concentration, which is a measure of the degree of acidity or basicity of a solution.

Values between 0 and 7 indicate acidity and values between 7 and 14 indicate alkalinity. The value for pure distilled water is 7, which is considered neutral.

"Physical facilities" means the structure and interior surfaces of a vessel's food storage, preparation and service areas, including accessories such as soap and towel dispensers, and attachments, such as light fixtures and heating or air conditioning system vents.

"Plumbing fixture" means a receptacle or device that:

(a) Is permanently or temporarily connected to the water- distribution system of the vessel and demands a supply of water from the system; or

(b) Discharges used water, waste materials, or sewage directly or indirectly to the drainage system of the vessel.

"Plumbing system" means the water supply and distribution pipes; plumbing fixtures and traps; soil, waste, and vent pipes; sanitary sewer drains and vessel drains, including their respective connections, devices, and appurtenances within the vessel; and water-treating equipment.

"Poisonous or toxic materials" means substances that are not intended for ingestion and are included in 4 categories:

(a) Cleaners and sanitizers, which include cleaning and sanitizing agents and agents such as caustics, acids, drying agents, polishes, and other chemicals;

(b) Pesticides *except sanitizers*, which include substances such as insecticides and rodenticides;

(c) Substances necessary for the operation and maintenance of the establishment such as nonfood-grade lubricants and personal care items that may be deleterious to health; and

(d) Substances that are not necessary for the operation and

maintenance of the vessel and are on the vessel, such as petroleum products and paints.

"Potentially hazardous food" means a food that is natural or synthetic and that requires temperature control because it is in a form capable of supporting:

- (a) The rapid and progressive growth of infectious or toxigenic microorganisms;
- (b) The growth and toxin production of ***Clostridium botulinum***; or
- (c) In raw shell eggs, the growth of ***Salmonella Enteritidis***.

"Potentially hazardous food" includes an animal food (a food of animal origin) that is raw or heat-treated; a food of plant origin that is heat-treated or consists of raw seed sprouts; cut melons; and garlic and oil mixtures that are not acidified or otherwise modified at a food processing plant in a way that results in mixtures that do not support growth as specified under Subparagraph (a) of this definition.

"Potentially hazardous food" does not include:

(a) *An air-cooled hard-boiled egg with shell intact, or a shell egg that is not hard-boiled, but has been treated to destroy all viable Salmonellae*;

(b) *A food with an a_w value of 0.85 or less;*

(c) *A food with a pH level of 4.6 or below when measured at 24°C (75°F);*

(d) *A food in an unopened hermetically sealed container that is commercially processed to achieve and maintain commercial sterility under conditions of nonrefrigerated storage and distribution; and*

(e) *A food for which laboratory evidence demonstrates that the rapid and progressive growth of infectious or toxigenic microorganisms or the growth of **S. Enteritidis** in eggs or **C. botulinum** can not occur, such as a food that has an a_w and a pH above the levels specified under Subparagraphs (b) and (c) of this definition and that may contain a preservative, other barrier to the growth of microorganisms, or a combination of barriers that inhibit the growth of microorganisms.*

(f) *A food that may contain an infectious or toxigenic microorganism or chemical or physical contaminant at a level sufficient to cause illness, but that does not support the growth of microorganisms as specified under Subparagraph (a) of this definition.*

"Poultry" means:

(a) Any domesticated bird such as chicken, turkey, duck, goose, or guinea, whether live or dead, as defined in 9 CFR 381 Poultry Products Inspection Regulations; and

(b) Any migratory waterfowl, game bird, or squab such as pheasant, partridge, quail, grouse, or guinea, whether live or dead, as defined in 9 CFR 362 Voluntary Poultry Inspection Program.

"Poultry" does not include ratite.

"Primal cut" means a basic major cut into which carcasses and sides of meat are separated, such as a beef round, pork loin, lamb flank, or veal breast.

"Readily accessible" means exposed or capable of being exposed for cleaning or inspection without the use of tools.

"Readily removable" means capable of being detached from the main unit without the use of tools.

"Ready-to-eat food" means food in a form that is edible without washing, cooking, or additional preparation by the food establishment or the consumer and that is reasonably expected to be consumed in that form.

"Ready-to-eat food" includes:

(a) Potentially hazardous food that is unpackaged and cooked to the temperature and time required for the specific food;

(b) Raw, washed, cut fruits and vegetables;

(c) Whole, raw fruits and vegetables that are presented for consumption without the need for further washing, such as at a buffet; and

(d) Other food presented for consumption for which further washing or cooking is not required and from which rinds, peels, husks, or shells are removed.

"Refuse" means solid waste not carried by water through the sewage system.

"Regulatory authority" means the local, state, or federal or equivalent international enforcement body or authorized representative having jurisdiction over the food processing, transportation, warehousing, or other food establishment.

"Removable" means capable of being detached from the main unit with the use of simple tools such as a screwdriver, pliers, or an open-end wrench.

"Restricted-use pesticide" means a pesticide product that contains the active ingredients specified in 40 CFR 152.175 Pesticides classified for restricted use, and that is limited to use by or under the direct supervision of a certified applicator.

"Safe material" means:

(a) An article manufactured from or composed of materials that may not reasonably be expected to result, directly or indirectly, in their becoming a component or otherwise affecting the characteristics of any food;

(b) An additive that is used as specified in §409 or 706 of the Federal Food, Drug, and Cosmetic Act; or

(c) Other materials that are not additives and that are used in conformity with applicable regulations of the FDA.

"Sanitization" means the application of cumulative heat or chemicals on cleaned food-contact surfaces that, when evaluated for efficacy, is sufficient to yield a reduction of 5 logs, which is equal to a 99.999% reduction, of representative disease microorganisms of public health importance.

"Sealed" ~~means free of cracks or other openings that allow the entry or passage of moisture.~~ means having no openings present that will permit the entry of soil or seepage of liquids.

"Sealed seam" means a seam that has no openings that would permit the entry of soil or liquid seepage.

"Seam" means an open juncture between two materials or equipment components greater than mm (1/32 inch) and less than mm (1/8 inch).

"Sewage" means liquid waste containing animal or vegetable matter in suspension or solution and may include liquids containing chemicals in solution.

"Shellfish-control authority" means a state, federal, foreign, tribal, or other government entity legally responsible for administering a program that includes certification of molluscan shellfish harvesters and dealers for interstate commerce.

"Shellstock" means raw, in-shell molluscan shellfish.

"Shucked shellfish" means molluscan shellfish that have one or both shells removed.

"Single-service articles" means tableware, carry-out utensils, and other items such as bags, containers, placemats, stirrers, straws, toothpicks, and wrappers that are designed and constructed for one time, one person use.

"Single-use articles" means utensils and bulk food containers designed and constructed to be used once and discarded.

"Single-use articles" includes items such as wax paper, butcher paper, plastic wrap, formed aluminum food containers, jars, plastic

tubs or buckets, bread wrappers, pickle barrels, ketchup bottles, and number 10 cans which do not meet the materials, durability, strength, and cleanability specifications.

"Slacking" means the process of moderating the temperature of a food such as allowing a food to gradually increase from a temperature of -23°C (-10°F) to -4°C (25°F) in preparation for deep-fat frying or to facilitate even heat penetration during the cooking of previously block-frozen food such as spinach.

"Smooth" means:

(a) A food-contact surface having a surface free of pits and inclusions with a cleanability equal to or exceeding that of (100 grit) number 3 stainless steel;

(b) A nonfood-contact surface of equipment having a surface equal to that of commercial grade hot-rolled steel free of visible scale; and

(c) A floor, wall, or ceiling having an even or level surface with no roughness or projections that render it difficult to clean.

"Table-mounted equipment" means equipment that is not portable and is designed to be mounted off the floor on a table, counter, or shelf.

"Tableware" means eating, drinking, and serving utensils for table use such as flatware including forks, knives, and spoons; hollowware including bowls, cups, serving dishes, and tumblers; and plates.

"Temperature measuring device or TMD" means a thermometer, thermocouple, thermistor, or other device that indicates the temperature of food, air, or water and is numerically scaled in Celsius and or Fahrenheit.

"USDA" means the U.S. Department of Agriculture.

"Utensil" means a food-contact implement or container used in the storage, preparation, transportation, dispensing, sale, or service of food, such as kitchenware or tableware that is multiuse, single-service, or single-use; gloves used in contact with food; food temperature measuring devices; and probe-type price or identification tags used in contact with food.

"Warewashing" means the cleaning and sanitizing of utensils and food-contact surfaces of equipment.

"Whole-muscle, intact beef" means whole muscle beef that is not injected, mechanically tenderized, reconstructed, or scored and marinated, from which beef steaks may be cut.

Integrated Pest Management

"Integrated Pest Management (IPM)" means a documented organized system of controlling pests through a combination of methods including inspection, baits, traps, effective sanitation and maintenance and judicious use of chemical compounds.

Child-Activity Centers

"**Child-activity center**" means facilities for child-related activities where children under 6-years old are placed to be cared for by vessel staff.

Administrative Guidelines

"**Critical item**" means a provision of these guidelines that, if in noncompliance, is more likely than other deficiencies to contribute to food or water contamination, illness, or environmental health hazard.

"**Critical item**" is an item that is denoted in these guidelines with a "**C**" to the right of the section number which is also highlighted in red.

"**Variance**" means a written document issued by the Vessel Sanitation Program that authorizes a modification or waiver of one or more requirements of these guidelines if, in the opinion of the Vessel Sanitation Program, a health hazard or nuisance will not result from the modification or waiver.

Outbreak-related Definitions

"**Acute gastroenteritis (AGE)**" – means an irritation and inflammation of the digestive tract characterized by sudden onset of symptoms of diarrhea and/or vomiting, as well as other constitutional symptoms.

"**Attack rate**" – (1) means the proportion of individuals who are exposed to an infectious agent who become clinically ill. (2) The cumulative incidence of infection in a group observed over a period during an epidemic.

"**Chemical disinfectant**" – means a chemical agent that is applied to inanimate objects to kill microbes. Chemical disinfectants are classified as "high-level," "intermediate-level," and "low-level" according to their comparative levels of potency and their intended uses. Chemical disinfectants are regulated either by FDA (medical instrument uses) or the Environmental Protection Agency EPA (environmental surface uses). Intended uses and directions for use are found both on the labels of the products and/or in package inserts. Material Safety and Data Sheets (MSDS) for each product are available from the manufacturer.

"**Chemical sanitizer**" – means a chemical that, when applied to a surface, reduces the number of microbes to a safe level.

"**Communicable disease**" – means an illness due to a specific infectious agent or its toxic products that arises through transmission of that agent or its products from an infected person, animal or inanimate reservoir to a susceptible host; either directly or indirectly through an intermediate plant or animal host, vector or the inanimate environment.

"**Communicable period**" – means the time during which an infectious agent may be transferred directly or indirectly from an infected person to another person, from an infected animal to humans, or from an infected person to animals, including arthropods

"**Contamination**" – means the presence of an infectious agent on a

body surface, in clothes, bedding, toys, surgical instruments or dressings, or other inanimate articles or substances including food and water.

“**Cruise ship (GI) outbreak**” – means $\geq 3\%$ gastrointestinal illness in either passenger or crew during any cruise.

“**Date/Time of onset**” – means the date/time on which the first symptom appeared.

“**Disinfectant**” – (see chemical disinfectant)

“**Disinfection**” – means the process that reduces the level of microbial contamination. A disinfectant is a chemical or physical agent that is applied to inanimate objects to kill microbes. Disinfectant performance is typically not defined in terms of a specific percentage or log-reduction target, and unlike the sanitizers for food-contact surfaces, products that are termed disinfectants are usually not intended for use in association with food-contact surfaces.

“**Epidemic**” – means the occurrence in a community or region of cases of an illness, specific health-behavior, or other health-related events clearly in excess of normal expectancy.

“**Epidemic curve**” – means a graphic plotting of the distribution of cases by date/time of symptom onset.

“**Fomites**” (singular, fomes) – means articles that convey infection to others because they have been contaminated by pathogenic organisms. Examples include handkerchief, drinking glass, door handle, clothing, and toys.

“**Fomite transmission**” – means the transmission of pathogenic organisms via inanimate objects (see fomites)

“**Foodborne disease outbreak**” (see food safety definition section)

“**Gastrointestinal illness case**” – (see reportable gastrointestinal illness case)

“**Host**” – means a person or other living animal, including birds and arthropods, that affords subsistence or lodgment to an infectious agent under natural conditions.

“**Incubation period**” – means the time interval between invasion by an infectious agent and the appearance of the first sign or symptom of the disease in question.

“**Index case**” – means the first case in a family or other defined group to come to the attention of the investigator

“**Infectious agent**” – means an organism (virus, rickettsia, bacteria, fungus, protozoan, or helminth) that is capable of producing infection or infectious disease.

“**Isolation**” – means the separation, for the period of communicability, of infected persons or animals from others under such conditions as to prevent or limit the transmission of the infectious agent from those infected to those who are susceptible or who may spread the agent to others.

“Outbreak” (general definition) – means an epidemic limited to localized increase in the incidence of a disease, e.g., in a village, town or closed institution; upsurge is sometimes used as a euphemism for outbreak. (see epidemic)

“Quarantine” – means the limitation of movement of apparently well persons who have been exposed to a case of communicable (infectious) disease during its period of communicability to prevent disease transmission during the incubation period if infection should occur.

“Reportable gastrointestinal illness case” (VSP definition) – means a case of gastrointestinal illness with one of the following characteristics; (1) diarrhea (three or more episodes of loose stool in a 24-hour period), or (2) vomiting and one additional symptom including one or more episodes of loose stool in a 24-hour period, or abdominal cramps, or headache, or muscle aches, or fever; and (3) reported to the master of the vessel, the medical staff or other designated staff by passenger or a crew member.

“Sanitization” (food-contact surfaces only) – means the application of cumulative heat or chemicals on cleaned food-contact surfaces that, when evaluated for efficacy, is sufficient to yield a reduction of 5 logs, which is equal to a 99.999% reduction, of representative disease microorganisms of public health importance.

“Sanitization” (non-food-contact surfaces) – means the performance standard used by the Environmental Protection Agency (EPA) for these sanitizers has required a reduction of the target microorganism by 99.9% or 3 logs (1000, 1/1000, or 10^3) after 5 minutes of contact time.

“Sanitizer” – (see chemical sanitizer).

“Secondary attack rate” – means the proportion of cases of an infection that occur among contacts within the incubation period following exposure to the primary case in relation to the total number of exposed contacts; the denominator is restricted to susceptible contacts when these can be determined. The secondary attack rate is a measure of contagiousness and is useful in evaluating control measures.

“Surveillance” (CDC) – means the ongoing, systematic collection, analysis and interpretation of outcome-specific data used in planning, implementation, and evaluation of public health practice

“Transmission” (of infection) - means any mechanism by which an infectious agent is spread from a source or reservoir to another person. These mechanisms are defined as follows:

- (1) Direct transmission (includes person-to-person transmission) – Direct and essentially immediate transfer of infectious agents to a receptive portal of entry through which human or animal infection may take place.
- (2) Indirect transmission – Occurs when an infectious agent is transferred or carried by some intermediate item, organism, means, or process to a susceptible host, resulting in disease. Included are airborne, foodborne, waterborne, vehicleborne (e.g., fomites) and vectorborne modes of transmission.

“Vehicle” – means the mode of transmission of an infectious agent from its reservoir to a susceptible host. This can be by food, water, and vectors, among others.

“Waterborne outbreak” (USEPA) – means an outbreak involving at least two people that experience a similar illness after ingesting or using water intended for drinking or after being exposed to or unintentionally ingesting or inhaling fresh or marine water used for recreational purposes and epidemiological evidence implicates the water as the source of illness. A single case of chemical poisoning or a laboratory-confirmed case of primary amebic meningoencephalitis is considered an outbreak .

4.0 Gastrointestinal Illness Surveillance

4.1 Data Collection

4.2 Notification

4.1 Data Collection

4.1.1 Reportable Cases

4.1.1.1 Definition

4.1.1.1.1 A reportable case of gastrointestinal illness shall be defined as: 02

(1) Diarrhea (three or more episodes of loose stools in a 24 hour period); or

(2) Vomiting and one additional symptom including one or more episodes of loose stools in a 24-hour period, or abdominal cramps, or headache, or muscle aches, or fever (temperature of $\geq 38^{\circ}\text{C}$ (100.4°F); and

(3) Reported to the master of the vessel, the medical staff, or other designated staff by a passenger or a crew member.

(4) *Nausea, although a common symptom of gastrointestinal illness, is specifically excluded from this definition to avoid mis-classifying seasickness (nausea and vomiting) as gastroenteritis.*

4.1.1.1.2 The reportable cases shall include those crew members with a symptom onset time of up to 3 days before boarding the vessel. 02

Documentation of the 3 day assessment for each crew member WITH SYMPTOMS shall be maintained on the vessel and be available for review during inspections.

4.1.1.1.3 *These case definitions are to be used for identifying and classifying cases, both of which are done for reporting purposes. They should not be used as criteria for clinical intervention or public health action. For many conditions of public health importance, action to contain disease should be initiated as soon as a problem is identified; in many circumstances, appropriate public health action should be undertaken even though insufficient information is available to determine whether cases meet the case definition. Nausea, although a common symptom of gastrointestinal illness, is excluded to avoid classifying seasickness (nausea and vomiting) as a gastrointestinal illness.*

4.1.1.1.4 *Foreign quarantine regulations require death and certain illnesses of an arriving international passengers or crew members to be reported to the quarantine station having responsibility for the port of entry. More information can be obtained from: Centers for Disease Control and Prevention, National Center for Infectious Diseases, Division of*

~~Quarantine~~, Division of Global Migration and Quarantine, 1600 Clifton Road, MS E-03, Atlanta, GA 30333 USA, telephone (404) 498-1600, fax (404) 498-1633.

4.1.2 Records

4.1.2.1 Log

4.1.2.1.1 A standardized gastrointestinal illness surveillance log for each cruise shall be maintained daily by the master of the vessel, the medical staff, or other designated staff. 02

4.1.2.1.2 The gastrointestinal illness surveillance log shall list the name of the vessel, the cruise dates and the cruise number. 02

4.1.2.1.3 The log shall list: 02

(1) All reportable cases of gastrointestinal illness;

(2) All passengers and crew members who are dispensed antidiarrheal medication from the master of the vessel, the medical staff, or other designated staff.

4.1.2.1.4 The gastrointestinal illness surveillance log entry for each passenger or crew member shall contain the following information: 02

(1) The first date of clinic visit or report to staff of illness;

(2) The person's name, age and gender;

(3) A designation as passenger or crew member;

(4) Crew member position or job on the vessel, if applicable;

(5) Cabin number;

(6) Meal seating information;

(7) Date and time of illness onset;

(8) Illness symptoms, including the presence of the following selected signs and symptoms: numbers of episodes each of diarrhea and vomiting per day, bloody stools, fever, recorded temperature, abdominal cramps, headaches and muscle aches;

(9) Notation on whether or not a stool specimen was requested and received;

(10) Use of antidiarrheal medication; and

(11) The presence of underlying medical conditions which may affect interpretation of acute gastrointestinal illness for example diabetic diarrhea, inflammatory bowel disease, gastrectomy or others.

- 4.1.2.1.5 ~~A separate inventory of the daily total, by quantity and type, of antidiarrheal medications sold or dispensed to the passengers or crew members in all areas of the vessel shall be maintained alongside the gastrointestinal illness surveillance log.~~ Antidiarrheal medications shall not be sold or dispensed to passengers or crew except by designated medical staff. A yes/no entry for antidiarrheal medications sold or dispensed at medical will be recorded on the gastrointestinal illness surveillance log form. 02
- 4.1.2.2 Questionnaires**
- 4.1.2.2.1 Questionnaires detailing activities and meal locations for the 72 hours before illness onset shall be distributed to all passengers and crew members who are gastrointestinal illness cases. The self-administered questionnaires shall contain all of the data elements that appear in the questionnaire found in Annex 13.2. The completed questionnaires shall be maintained alongside the gastrointestinal illness surveillance log. 02
- 4.1.2.3 Retention**
- 4.1.2.3.1 The medical log, gastrointestinal illness log, ~~the daily inventory of antidiarrheal medication sales,~~ and the 72 hour self-administered questionnaires shall be maintained on the vessel for 12 months. Electronic records of these documents are acceptable as long as the data are complete and can be retrieved during inspections and outbreak investigations. Retention of a paper record or crew medical log for crew members with symptoms up to 3 days prior to boarding the vessel is acceptable and shall also be maintained on the vessel for 12 months. 02
- 4.1.2.3.2 The gastrointestinal illness surveillance log, ~~the daily inventory of antidiarrheal medication sales,~~ and the 72 hour self-administered questionnaires shall be available for review by the VSP during inspections and outbreak investigations. These materials shall be transmitted by facsimile to the VSP for review in outbreak investigations, as requested. 02
- 4.1.2.4 Confidentiality**
- 4.1.2.4.1 All personal medical information received by CDC personnel shall be protected in accordance with applicable federal law, including 5 U.S.C. Section 552a. Privacy Act - Records maintained on individuals and the Freedom of Information Act. 5 U.S.C. Section 552. Administrative Procedure - Public information; agency rules, opinions, orders, records, and proceedings.

4.2 Notification

4.2.1 Routine Report

4.2.1.1 Routine Report Timing

4.2.1.1.1 The master, the medical staff, or other designated staff of a vessel destined for a U.S. port from a foreign port shall submit at least one standardized gastrointestinal illness report based on the number of reportable cases in the gastrointestinal illness log to the VSP no less than 24 hours, but not more than ~~30~~ 36 hours before the vessel's expected arrival at the U.S. port. **01 C**

4.2.1.1.2 If the number of cases changes after submission of the initial report, an updated report shall be submitted no less than 4 hours before the vessel's arrival at the U.S. port. The 4-hour update report shall be a cumulative total count of the reported crew and passengers during the entire cruise, including the additional cases. **01 C**

4.2.1.1.3 Routine (24 hour) and 4-hour update reports may be made by telephone, facsimile, or preferably electronically. The vessel shall maintain proof onboard that the report was successfully received by the VSP. **02**

4.2.1.2 Report Contents

4.2.1.2.1 The gastrointestinal illness report shall contain: **01 C**

- (1) The name of the vessel;
- (2) The ports of embarkation and disembarkation;
- (3) The dates of embarkation and disembarkation;
- (4) The total numbers of reportable cases of gastrointestinal illness among passengers and crew members, including those who have been disembarked or removed because of illness, even if the number is 0; and
- (5) The total number of passengers and crew members on the cruise.

4.2.1.2.2 *For cruises lasting longer than 15 days prior to entering a U. S. port, the gastrointestinal illness report may include only those reportable cases and total numbers of passengers and crew members for the 15 days prior to the expected arrival at a U. S. port.*

4.2.2 Special Report

4.2.2.1 Special Report Timing

4.2.2.1.1 The master, or designated corporate representative, of a vessel with an international itinerary destined for a U.S. port shall submit a special report at any time during a cruise, including between two U.S. ports, when: 01 C

(1) The cumulative percentage of reportable cases entered in the gastrointestinal illness surveillance log, reaches 2% among passengers or 2% among crew; and

4.2.2.1.2 (2) The vessel is within 15 days of expected arrival at a U.S. port. Daily reports of illness status shall be submitted as requested by the VSP following the initial submission of a special report. 01 C

4.2.2.1.3 Routine 24-hours before arrival and 4-hours before arrival reports shall continue to be submitted by the master, or designated corporate representative, of a vessel that has submitted a special report. 01 C

4.2.2.2 Special Notification

4.2.2.2.1 A telephone notification to the VSP shall accompany a special 2% report. 01 C

4.2.3 Report Retention

4.2.3.1 Retention

4.2.3.1.1 The 24 hour, 4 hour, and special reports shall be maintained on the vessel for 12 months. 02

4.2.3.1.2 The reports shall be available for review by the VSP during inspections and outbreak investigations. 02

4.3 Clinical Specimens

4.3.1 Clinical Specimen Submission

4.3.1.1 The medical staff will be responsible for maintaining a supply of at least 10 clinical specimen collection containers for both viral and bacterial agents (10 for each), as well as the proper shipping containers and labels for same and provided in Annex 13.4 of this manual. Specific information on vendors where supplies may be ordered is provided in the VSP website. 02

4.3.2 Clinical Specimen Submission Collection Procedures

4.3.2.1 When a vessel reaches 2% reportable gastrointestinal illness in either passenger or crew members, the medical staff will begin collecting whole stool specimens for viral analysis, unless it is clear from clinical and epidemiological data that the causative agent is of bacterial or parasitic etiology. If the etiologic agent is suspected to be bacterial and/or parasitic, the medical staff should consult with epidemiology staff at the VSP for clinical specimen collection requirements. 02

4.3.2.2 All clinical specimens shall be packaged and shipped in accordance with the guidelines outlined in Annex 13.4 and the specific details provided in the VSP website. The specimen packaging shall include the proper documentation as required by the receiving laboratory. 02

4.4 Requirements for Isolating Symptomatic and Primary Contacts of Crew and Passengers with Gastroenteritis

4.4.1 Crew, Staff, Officers and other Employees

4.4.1.1 a. Symptomatic with Acute Gastroenteritis (AGE): 11 **C**

i. Food Employees - (those whose duties include working with unpackaged food, food equipment or utensils, or food-contact surfaces:

- Isolation in cabin or designated restricted area until symptom-free for a minimum of 48 hours
- Follow-up with and approval by designated medical personnel is required before returning crew to work

ii. Non-food Employees:

- Isolation in cabin or designated restricted area until symptom-free for a minimum of 24 hours
- Follow-up with and approval by designated medical personnel is required before returning crew to work

<u>4.4.1.2</u>	<u>b. Asymptomatic cabin mates or immediate contacts of symptomatic crew:</u> <u>i. Food Employees:</u> <u>-Off duty with limited exposure to other crew until he/she is symptom-free for a minimum of 24 hours</u> <u>-Restrict exposure to primary symptomatic contact</u> <u>-Infirmiry personnel or designated supervisors to directly question crew on a daily basis regarding development of illness until a minimum of 48 hours after exposure</u> <u>Approval by designated medical personnel before returning to work</u> <u>ii. Non-food Employee:</u> <u>-Restrict exposure to primary symptomatic contact</u> <u>-Infirmiry personnel or designated supervisors to directly question crew on a daily basis regarding development of illness until a minimum of 48 hours after exposure</u>	<u>11</u>	<u>C</u>
<u>4.4.2</u>	<u>Passengers</u>		
<u>4.4.2.1</u>	<u>a. Symptomatic with AGE:</u> <u>-Advised to remain isolated in cabin until well for a minimum of 24 hours after symptom resolution</u> <u>-Follow-up by infirmiry personnel advised</u> <u>-Handwashing tips and personal hygiene fact sheet provided by ship</u>	<u>11</u>	<u>C</u>

5.0 Potable Water

- 5.1 Source
- 5.2 Bunker and Production Halogenation
- 5.3 Potable Water System
- 5.4 Potable Water System Halogenation
- 5.5 Potable Water System Halogen Monitoring
- 5.6 Microbiologic Monitoring
- 5.7 Water Distribution System Protection

5.1 Source

5.1.1 Bunkering

5.1.1.1 Standards

~~5.1.1.1.1 Drinking water bunkered from shore supplies shall be potable.~~ 03 C
5.1.1.1.1 Drinking water bunkered from shore supplies shall be from a potable source which meets World Health Organization standards for potable water.

5.1.1.2 Sample Reports

5.1.1.2.1 Where available, the vessel shall have a copy of the most recent microbiologic report from each port before bunkering potable water to verify that the water meets potable standards. A recent microbiological report shall mean a report where the date of the analysis report is 30 days or less from the date of potable water bunkering, and the report should include an analysis for Escherichia coli at a minimum. 06

5.1.1.2.2 Water samples collected and analyzed by the vessel for the presence of Escherichia coli may be substituted for port water system supplied reports. These samples shall be analyzed utilizing a method accepted in Standard Methods for the Examination of Water and Wastewater. If a vessel bunkers potable water from the same port more than once per month only one test per month is required.

5.1.1.2.3 These records shall be maintained on the vessel for 12 months and shall be available to the VSP for review during inspections. 06

5.1.2 Water Production

5.1.2.1 Location

~~5.1.2.1.1 A reverse osmosis, distillation plant or other process that supplies water to the vessel's potable water system shall not operate in polluted or harbor areas~~ 03 C
5.1.2.1.1 polluted areas, harbors, or at anchor.

5.1.2.1.2 A reverse osmosis unit or evaporator with a completely separate plant/process, piping system, and connections from the potable water system may be used to produce technical water while in polluted areas, in port, or at anchor. 03

5.2 Bunker and Production Halogenation

5.2.1 Procedures

5.2.1.1 Residual Halogen

5.2.1.1.1 Potable water shall be continuously halogenated to at least 2.0 mg/L (ppm) free residual halogen at the time of bunkering or production with an automatic halogenation device. The amount of halogen injected during bunkering or production shall be controlled by a flow meter or a free halogen analyzer. 03 C

5.2.1.2 Monitoring

5.2.1.2.1 ~~A halogen demand test~~ A free halogen residual and pH shall be conducted on the shore-side water supply before starting the bunkering process to establish the correct halogen dosage. The results of the pre-test shall be recorded and available for review during inspections. 08

5.2.1.2.2 Free residual halogen monitoring shall be performed at least hourly during the bunkering of potable water and performed at least once every 4 hours during the onboard production of potable water. 08

5.2.1.2.3 Accurate records of this monitoring shall be maintained aboard for 12 months and shall be available to the VSP for review during inspections. 08

5.2.1.2.4 Halogen analyzer-chart recorders used in lieu of manual tests and logs shall be calibrated at the beginning of bunkering or production, and the calibration shall be recorded on the chart or in a log book. 06

5.2.1.2.5 Halogen analyzer-chart recorders used on bunker water systems shall be constructed and installed in accordance with accepted engineering practices. 06

5.2.1.2.6 *Electronic data loggers with certified data security features may be used in lieu of chart recorders.*

5.2.1.2.7 Water samples for halogen testing shall be obtained from a sample cock located on the bunker or production water line at least 3 m (10 feet) after the halogen injection point and before the storage tank. 08

5.2.1.2.8 *Bunker water or production water halogen samples may also be taken from potable water tanks which were previously empty.*

5.3 Potable Water System

5.3.1 Potable Water Tanks

5.3.1.1 Protection

5.3.1.1.1 Potable water tanks shall not share a common wall with the hull of the vessel or with tanks or piping containing non-potable water or other liquids. 07 C

- 5.3.1.1.2 Piping systems carrying sewage or other non-potable liquids shall not pass ~~above or~~ through potable water tanks. Minimize the use of non-potable lines above potable water tanks. Non-potable lines above potable water tanks shall not have any mechanical couplings. 08
- 5.3.1.1.3 Interior coatings on potable water tanks shall be approved for potable water contact, and all manufacturer's recommendations for application, drying, or curing shall be followed. Written documentation for the coating used and recommendations followed shall be available for review during inspections. 08
- 5.3.1.2 Tank Construction**
- 5.3.1.2.1 Potable water tanks shall be identified with a number and the words "POTABLE WATER" in letters 13 mm (0.5 inch) high. 08
- 5.3.1.2.2 Potable water tanks shall have sample valves which are turned down. 08
- 5.3.1.2.3 The potable water tank or combined vent and overflow shall be protected from contamination. 08
- 5.3.1.2.4 Any device for determining the depth of water in the potable water tanks shall be constructed and maintained so as to prevent contaminated substances or liquids from entering the tanks. 08
- 5.3.1.2.5 Manual sounding of potable water tanks shall be performed only in emergencies and shall be performed in a sanitary manner. 08

5.3.2 Potable Water Piping

5.3.2.1 Protection

- 5.3.2.1.1 ~~Potable water piping shall be painted light blue or striped with 15 cm (6 inches) light blue bands or a light blue stripe at fittings on each side of partitions, decks, and bulkheads and at intervals not to exceed 5 m (15 feet) in all spaces, except where the decor would be marred by such markings.~~ Paint or stripe potable water piping and fittings in auxiliary blue, or in accordance with ISO 14726, at 5 m (15 feet) intervals and on each side of partitions, decks, and bulkheads, except where décor would be marred by such markings. 08
- 5.3.2.1.2** Potable water piping shall not pass under or through sewage or other tanks holding non-potable liquids. **07 C**
- 5.3.2.1.3 The potable water bunker filling line shall begin either horizontally or in a gooseneck position pointing downwards, at a point at least ~~45 cm~~ 460 mm (18 inches) above the bunker station deck. 08
- 5.3.2.1.4 The potable water filling line shall have a screw cap or plug fastened by a non-corroding chain to an adjacent bulkhead or surface in such a manner that the cap or plug shall not touch the deck when hanging free. The connections for the hose attachments shall be unique and fit only potable water hoses. 08
- 5.3.2.1.5 Each bunker station potable water filling line shall be painted light auxiliary blue and clearly marked "POTABLE WATER FILLING" in letters at least 13 mm (0.5 inch) high, stamped on a non-corrosive label plate or the equivalent and located at or near the point of hose connection. 08

- 5.3.2.1.6 Non-potable freshwater, if used on the vessel, shall be bunkered through separate piping using fittings incompatible for potable water bunkering. 08
- 5.3.2.1.7 Non-potable freshwater shall flow through a completely different piping system and be identified with a different color. 08

5.3.3 Potable Water Hoses

5.3.3.1 Construction

- 5.3.3.1.1 Potable water hoses shall have unique fittings from all other hose fittings on the vessel. 08
- 5.3.3.1.2 ~~Potable water hoses shall be identified for use with potable water.~~ Potable water hoses shall be labeled for use with the words “potable water only” in letters at least 13 mm (0.5 inch) at each connecting end. 08
- 5.3.3.1.3 All hoses, fittings, water filters, and appurtenances used for connection with the bunkering of potable water shall be constructed of safe, easily cleanable materials. 08
- 5.3.3.1.4 All hoses, fittings, water filters, and appurtenances used for connection with the bunkering of potable water shall be maintained in good repair. 08
- 5.3.3.1.5 Potable water hose lockers shall be constructed of smooth, nontoxic, corrosion resistant, easily cleanable material and shall be maintained in good repair. 08
- 5.3.3.1.6 Potable water hose lockers shall be marked “POTABLE WATER HOSE AND FITTING STORAGE” in letters at least 13 mm (0.5 inch) high. 08
- 5.3.3.1.7 The potable water hose lockers shall be mounted at least ~~45 cm~~ 460 mm (18 inches) above the deck and shall be self-draining. 08
- 5.3.3.1.8 The locker doors shall be closed when not removing hoses and equipment. 08
- 5.3.3.1.9 The locker shall not be used for any other purpose than storing potable water hoses, fittings, sanitizing buckets, and other associated equipment. 08

5.3.3.2 Handling

- 5.3.3.2.1 Potable water hoses shall not be used for any other purpose. 08
- 5.3.3.2.2 All hoses, fittings, water filters, buckets, and appurtenances used for connection with the bunkering of potable water shall be handled and stored in a sanitary manner. 08
- 5.3.3.2.3 Potable water hoses shall be handled with care to prevent contamination by dragging ends on the ground, pier, or deck surfaces, or by dropping the hose into the harbor. 08
- 5.3.3.2.4 Potable water hoses shall be flushed before being used and shall be drained after each use. 08
- 5.3.3.2.5 Potable water hoses shall be stowed rolled tight with the ends capped, on reels, or racks, or with ends coupled together in potable water hose lockers. 08

5.3.4 Potable Water System Contamination

5.3.4.1 Cleaning and Disinfection

- 5.3.4.1.1** Potable water tanks and any parts of the potable water distribution system shall be cleaned, disinfected, and flushed with potable water: **07 C**
- (1) Before being placed in service; and
 - (2) Before returning to operation after repair, replacement; or
 - (3) Being subjected to any contamination, including entry into a potable water tank.
- 5.3.4.1.2 Potable water tanks shall be inspected, cleaned, and disinfected during dry docks and wet docks, or every 2 years, whichever is less. **08**
- 5.3.4.1.3 Documentation of the inspection, maintenance, cleaning, disinfection (to include concentration and contact time of disinfectant), and flushing cleaning shall be maintained for 12 months and shall be available to the VSP for review during inspections. **08**
- 5.3.4.1.4** Disinfection following potential contamination shall be accomplished by increasing free residual halogen to at least 50 mg/L (ppm) throughout the affected area and maintaining this concentration for 4 hours, or by way of another procedure recognized and accepted by the VSP. **07 C**
- 5.3.4.1.5 *In an emergency, this contact time may be shortened to 1 hour by increasing free residual halogen to at least 100 mg/L (ppm) throughout the affected area.*
- 5.3.4.1.6 The disinfected parts of the system shall be flushed with potable water or otherwise de-chlorinated until the free residual halogen is ≤ 5.00 mg/L (ppm). **08**
- 5.3.4.1.7** An alternative potable water tank cleaning and disinfection procedure which is **ONLY** approved for routine cleaning and disinfection and is **NOT** approved for known or suspected contaminated tanks is as follows: **08**
- (1) Remove (strip) all water from the tank;
 - (2) Clean all tank surfaces, including filling lines, etc. with an appropriate detergent;
 - (3) Thoroughly rinse the surfaces of the tank with potable water and strip this water;
 - (4) Wet all surfaces of the tank with at least a 200 ppm (mg/L) solution of chlorine (this can be done using new, clean mops, rollers, etc.);
 - (5) Ensure that the tank surfaces remain wet with the chlorine solution for at least 2 hours;
 - (6) Refill the tank and verify that the chlorine level is 5.0 ppm (mg/L) or below before placing the tank back into service.

5.4 Potable Water System Halogenation

5.4.1 Halogenation Devices

5.4.1.1 Construction and Installation

5.4.1.1.1 All distribution water system halogenation devices shall be constructed and installed in accordance with recommended engineering practices. 06

5.4.1.2 Operation

5.4.1.2.1 The halogenation device shall provide continuous halogenation of the potable water distribution system and shall maintain a free residual halogen of ≥ 0.2 mg/L (ppm) and ≤ 5.0 mg/L (ppm) throughout the distribution system. 04 C

5.4.1.2.2 The amount of halogen injected into the potable water system shall be controlled by a flow meter or a free halogen analyzer. 08

5.4.1.2.3 ~~At least one backup halogen pump shall be available with automatic switchover to maintain the free residual halogen in the event that the primary pump fails.~~ At least one backup halogen pump shall be installed with an active automatic switchover feature to maintain the free residual halogen in the event that the primary pump fails, an increase in demand occurs, or the low chlorine alarm sounds. 06

5.5 Potable Water System Halogen Monitoring

5.5.1 Halogen Analyzer-Chart Recorder

5.5.1.1 Installation

5.5.1.1.1 A halogen analyzer-chart recorder shall be installed at a distant point in the potable water distribution system where a significant water flow exists and represents the entire distribution system. In cases where dual distribution loops exist and no pipes connect the loops there shall be an analyzer and chart recorder for each loop. 06

5.5.1.1.2 *Electronic data loggers with certified data security features may be used in lieu of chart recorders.*

5.5.1.2 Operation

5.5.1.2.1 The halogen analyzer-chart recorder shall be properly maintained, operated, and calibrated/verified daily in accordance with the manufacturer's instructions. A manual comparison test shall be conducted daily to verify calibration. Calibration shall be made whenever the manual test value is > 0.2 ppm higher or lower than the analyzer reading. 06

5.5.1.2.2 ~~The calibration shall be recorded on the chart or in a log book.~~ The daily, manual comparison test or calibration shall be recorded either on the recorder chart or in a log book. 06

5.5.1.2.3	The free residual halogen measured by the halogen analyzer shall be ± 0.2 mg/L (ppm) of the free residual halogen measured by the manual test.	05	C
5.5.1.2.4	The test kit used to calibrate the halogen analyzer shall be graduated in increments no greater than 0.2 mg/L (ppm) in the range of free residual halogen normally maintained in the potable water system.	06	
5.5.2 Halogen Analyzer Charts			
5.5.2.1 Chart Design			
5.5.2.1.1	Halogen analyzer-chart recorder charts shall have a range of 0.0 to 5.0 mg/L (ppm) and have a recording period of 24 hours.	06	
5.5.2.1.2	Electronic data loggers with certified data security features used in lieu of chart recorders shall produce records that conform to the principles of operation and data display required of the analog charts, including printing the records.	06	
5.5.2.1.3	Electronic data logging shall be in increments of ≤ 15 minutes.	06	
5.5.2.2 Operation			
5.5.2.2.1	Halogen analyzer-chart recorder charts shall be changed, initialed, and dated daily. Charts shall contain notations of any unusual water events in the potable water system.	06	
5.5.2.2.2	Halogen analyzer-chart recorder charts shall be retained for at least 12 months and shall be available to the VSP for review during inspections.	06	
5.5.2.2.3	Records from the halogen analyzer-chart recorder shall verify the free residual halogen of ≥ 0.2 mg/L (ppm) and ≤ 5.0 mg/L (ppm) in the water distribution system for at least 16 hours in each 24-hour period since the last inspection of the vessel.	06	

5.5.3 Manual Halogen Monitoring

5.5.3.1 Equipment Failure

- 5.5.3.1.1 Free residual halogen shall be measured by a manual test kit at the halogen analyzer at least every 4 hours in the event of equipment failure. 06
- 5.5.3.1.2 Manual readings shall be recorded on a chart or log, shall be retained for at least 12 months, and shall be available to the VSP for review during inspections. 06
- 5.5.3.1.3 Repairs on malfunctioning halogen analyzer-chart recorders shall be completed within 10 days of equipment failure. 06
- 5.5.3.1.4 Provide an audible alarm in a continuously occupied watch station, ie: the engine control room, to indicate low free halogen readings at the distant point (bridge) analyzer. 06

5.6 Microbiologic Monitoring

5.6.1 Sampling and Analysis

5.6.1.1 Methodology

- 5.6.1.1.1 A minimum of four potable water samples per month shall be collected and analyzed for the presence of *Escherichia coli*. Samples shall be collected randomly from locations forward, aft, upper, and lower decks of the vessel. Sample sites shall be changed each month in order to obtain a good representation of the potable water distribution system. 06
- 5.6.1.1.2 Samples shall be analyzed utilizing a method accepted in *Standard Methods for the Examination of Water and Wastewater*. 06

5.6.1.2 Records

- 5.6.1.2.1 Sample results shall be maintained with the halogen analyzer-chart recorder charts, onboard the vessel shall be retained for at least 12 months, and shall be available to the VSP for review during inspections. 06

5.7 Water Distribution System Protection

5.7.1 Cross-Connection Control

5.7.1.1 Program

5.7.1.1.1 The potable water distribution system shall be maintained free of cross-connections with non-potable piping systems and tanks. 07 C

5.7.1.1.2 The potable water system shall be protected against backflow or other contamination by backflow preventers or air gaps. 07 C

5.7.1.1.3 The vessel shall provide a comprehensive cross-connection control program that provides safe connections to the potable water system through air gaps or appropriate backflow devices at the following locations, if present: 08

(1) Potable water supply lines to swimming pools, whirlpool spas, hot tubs, bathtubs, showers, and similar facilities; In the case of a potable water supply to a pool or whirlpool spa make-up tank, an overflow line at least twice the diameter of the potable water supply line and located below the tank supply line, is an acceptable form of backflow prevention provided that there is an indirect connection to the wastewater system;

(2) Photographic laboratory developing machines and utility sinks;

(3) Beauty and barber shop spray-rinse hoses;

(4) Potable water faucets where hoses are connected or can be connected by threaded or quick-connect outlets such as those serving tanks containing chlorine and other chemicals, and deck taps;

(5) Garbage grinders and pulpers;

(6) Mechanical warewashing machines;

(7) Hospital and laundry equipment;

(8) Air conditioning expansion tanks;

(9) Boiler feed water tanks;

(10) Fire systems;

(11) Toilets;

(12) Potable water, bilge, and sanitary pumps that require priming;

(13) Freshwater or saltwater ballast systems;

- (14) Bilge or other waste water locations;
- (15) International shore connections for fire/sprinkler, high saline overboard discharge from evaporators, or other such cross-connections involving high pressure require reduced pressure assembly backflow prevention devices installed; and
- (16) Any other connection between potable and non-potable water systems.

<u>5.7.1.1.4</u>	<u>A cross-connection control program shall include at a minimum: a complete listing of cross-connections and the backflow prevention method/device for each, so there is a match to the plumbing system component and location, the program shall set a schedule for inspection frequency. Repeat devices such as toilets can be grouped under a single device type, and air-gaps shall be included in the listing. A log documenting the inspection or maintenance in written or electronic form shall be maintained and be available for review during inspections.</u>	08
5.7.1.2	Device Installation	
5.7.1.2.1	Backflow preventers shall be installed when air gaps are impractical or when water under pressure is required.	08
5.7.1.2.2	Air gaps shall be at least twice the diameter of the delivery fixture opening and a minimum of 3-cm 30 mm (1 inch).	08
5.7.1.2.3	An atmospheric vacuum breaker shall be installed at least 15-cm 150 mm (6 inches) above the flood-level rim of the fixtures.	08
5.7.1.2.4	An atmospheric vacuum breaker shall be installed only in the supply line on the discharge side of the last control valve.	08
5.7.1.2.5	A continuous pressure-type backflow preventer shall be installed when a valve is located downstream from the backflow preventer.	08
5.7.1.2.6	Backflow preventers shall be provided on all fixtures using potable water and which have submerged inlets.	08
5.7.1.2.7	A vacuum breaker shall be installed on a potable water supply that is connected to a vacuum toilet system. An atmospheric vacuum breaker shall be located on the discharge side of the last control valve (flushing device).	08
5.7.1.2.8	Lines to divert potable water to other systems by valves or interchangeable pipe fittings shall have an air gap following the valve.	08
5.7.1.2.9	Backflow preventers shall be located so they may be <u>inspected</u> , serviced, and maintained.	08

5.7.1.3 Air Supply Connections

- 5.7.1.3.1 The air supply to a compressed air system that supplies pressure to both non-potable and potable water pneumatic tanks shall be through a press-on (manual) type of air valve or hose. 08
- 5.7.1.3.2 *A fixed connection of this valve may be used when the air supply is from a separate compressor used exclusively for pressure to potable pneumatic tanks.*

5.7.2 Backflow-Preventer Inspection and Testing

5.7.2.1 Maintenance

- 5.7.2.1.1 Backflow preventers shall be maintained in good repair. 08

5.7.2.2 Inspection and Service

- 5.7.2.2.1 Backflow prevention devices should be periodically inspected and any failed units shall be replaced. 08
- 5.7.2.2.2 Backflow prevention devices requiring testing, for example reduced pressure backflow preventer and double check valves with test cocks, shall be inspected and tested with a test kit at least annually. Test results showing the pressure differences on both sides of the valves shall be maintained for each device. 08
- 5.7.2.2.3 The inspection and test results for backflow preventers shall be retained for at least 12 months and shall be available to the VSP for review during inspections. 08

6.0 Swimming Pools and Whirlpool Spas

- 6.1 Flow-Through Seawater Swimming Pools
- 6.2 Recirculating Swimming Pools
- 6.3 Whirlpool Spas
- 6.4 Safety

6.1 Flow-Through Seawater Swimming Pools

6.1.1 Operation

6.1.1.1 At Sea

6.1.1.1.1 Flow-through seawater supply systems for swimming pools shall be used only while the vessel is under way and at sea beyond 20 kilometers (12 miles) from nearest land. 10

6.1.1.2 In Port

6.1.1.2.1 The pool (when in flow-thru seawater mode only) shall be drained before the vessel reaches port, and it shall remain empty while in port. 10

6.1.1.2.2 If the pool is not drained before arriving in port, the pool's seawater filling system shall be shut off 20 kilometers (12 miles) before reaching land, and a recirculation system shall be used with appropriate filtering and halogenation. 10

6.1.1.2.3 No bathers shall be allowed to use the pool before a free residual halogen of 1.0 mg/L (ppm) is achieved. **09 C**

6.2 Recirculating Swimming Pools

6.2.1 Operation

6.2.1.1 Filters

6.2.1.1.1 Recirculated swimming pool water shall be filtered. 10

6.2.1.1.2 Filter pressure differential shall be monitored, and the filter shall be backwashed as recommended by the manufacturer. A written or electronic record of the backwashing shall be available for review during inspections. 10

6.2.1.1.3 Filter media shall be examined and changed as recommended by the manufacturer. 10

6.2.1.1.4 Swimming pool filter pressure gauges and valves shall be replaced when they are defective. 10

6.2.1.1.5 The operating manuals for all recirculating swimming pool components such as filters, pumps, and halogenation shall be maintained aboard the vessel in a location that is known by and is accessible to crew members who are responsible for the pool's operations and maintenance. 10

6.2.1.2 Water Quality

6.2.1.2.1 The recirculated swimming pool's water flow rates, pH, alkalinity, and clarity shall be monitored and adjusted as recommended by the manufacturer and to maintain optimum public health protection. 10

6.2.1.2.2 A fecal accident response procedure shall be documented and available for review during inspections. 10

6.2.1.2.3 A written or electronic record shall be made of all fecal accidents which includes pool name, date and time of incident, response steps taken, free residual halogen level achieved following cleaning, and contact times. 10

6.2.2 Halogenation

6.2.2.1 Residual Halogen

6.2.2.1.1 A free residual halogen of ≥ 1.0 and ≤ 3.0 5.0 mg/L (ppm) shall be maintained in recirculated swimming pools. 09 C

6.2.2.1.2 Halogenation systems shall be operated and maintained in good repair in accordance with the manufacturer's recommendations. 10

6.2.2.2 Residual Halogen Monitoring

6.2.2.2.1 A halogen test kit shall be provided and used. 10

6.2.2.2.2 Residual halogen logs shall be maintained with residuals measured and recorded every 4 hours during operation. 10

6.2.2.2.3 Halogen analyzer-chart recorders used in lieu of manual tests, and logs shall be calibrated daily, and the calibration shall be recorded on the chart or in a log book. 10

6.2.2.2.4 *Electronic data loggers with certified data security features may be used in lieu of chart recorders.*

6.2.2.2.5 Halogen analyzer-chart recorder charts shall be initialed, dated, and changed daily. 10

6.2.2.2.6 Logs and charts shall contain notations of any unusual water events with the swimming pool operation and corrective actions taken. 10

6.2.2.2.7 Logs and charts shall be retained for at least 12 months and shall be available to the VSP for review during inspections. 10

6.3 Whirlpool Spas

6.3.1 Public Operations

6.3.1.1 Filters

6.3.1.1.1	Whirlpool spa water shall be filtered.	10
6.3.1.1.2	At least one replacement cartridge or cannister-type filter shall be available at all times for whirlpool spa filtration systems that use this type of filter.	10
6.3.1.1.3	Cartridge or cannister-type filters shall be inspected at least weekly for cracks, breaks, damaged components, and excessive organic material accumulation.	10
6.3.1.1.4	Granular filters shall be backwashed at least daily. until the sight glass indicates a clean flow. The uniformity of the backwash action shall be observed, where possible. Other types of filter media shall be backwashed or cleaned at the frequency specified by the manufacturer. <u>Backwashing shall be repeated until the water viewed through the sight glass or discharge point is clean flowing.</u>	10
6.3.1.1.5	The granular filters shall be opened at least monthly and examined for cracks, mounds, or holes in the filter media. A core sample of the filter media shall be inspected for excessive organic material accumulation using a recommended sedimentation method. <u>One acceptable method is to draw water down to the media surface and inspect the for cracks, mounds, or holes. Take a sample from the filter core and inspect it for excessive organic/dirt build-up at least monthly. Shake sampled media and water in a clean, stoppered, clear-plastic container and observe the settling action. If, after 30 minutes of settling, a measurable layer of sediment is within or on top of the filter media or fine, colored particles are suspended in the water, the organic loading may be excessive, and media replacement should be considered.</u>	10
6.3.1.1.6	The granular filter media shall be replaced at least every 6 months. The filter housing shall be cleaned and sanitized before the new filter media is placed in it.	10
6.3.1.1.7	Whirlpool spa filter pressure gauges and valves shall be replaced when they are defective.	10
6.3.1.1.8	The operating manuals for all whirlpool spa components <u>such as filters, pumps, and halogenation equipment</u> shall be maintained aboard the vessel <u>in a location that is know by and is accessible to crew members who are responsible for the whirlpool spa's operations and maintenance.</u>	10
6.3.1.2	Water Quality	
6.3.1.2.1	The whirlpool spa water shall be changed daily.	10
6.3.1.2.2	The whirlpool spa water shall be maintained with a pH between 7.2 and 7.8.	10
6.3.1.2.3	A fecal accident response procedure <u>which meets or exceeds the procedure provided in annex 13.11</u> shall be documented and available to the VSP for review during inspections.	10

6.3.2 Halogenation

6.3.2.1 Residual Halogen

6.3.2.1.1 Whirlpool spas shall maintain a free residual chlorine of ≥ 3.0 mg/L (ppm) and ≤ 10 mg/L (ppm), or a free residual bromine of ≥ 4.0 mg/L (ppm) and ≤ 10 mg/L (ppm). **09 C**

6.3.2.1.2 The free residual halogen shall be increased to at least 10.0 mg/L (ppm) in whirlpool spas and circulated for at least 1 hour at the end of each day. Except for areas covered in section 6.3.3 and 6.3.4, the free halogen shall be increased to at least 10.0 mg/L (ppm) in whirlpool spas and circulated for at least 1 hour at the end of each day. Whirlpool spas filled with seawater are exempt from this requirement. 10

6.3.2.1.3 Halogenation systems shall be operated and maintained in good repair in accordance with the manufacturer's recommendations. 10

6.3.2.1.4 A written or electronic record of whirlpool spa filter inspections, backwashing, core sample sedimentation test, and shock halogenation (concentration in ppm and time) shall be available for review during inspections. 10

6.3.2.2 Residual Halogen Monitoring

6.3.2.2.1 A halogen test kit shall be provided and used. 10

6.3.2.2.2 Residual halogen logs shall be maintained with residuals measured and recorded hourly during operation. 10

6.3.2.2.3 Halogen analyzer-chart recorders used in lieu of manual tests and logs shall be calibrated daily, and the calibration shall be recorded on the chart or in a log book. 10

6.3.2.2.4 *Electronic data loggers with certified data security features may be used in lieu of chart recorders.*

6.3.2.3.5 Halogen analyzer-chart recorder charts shall be initialed, dated and changed daily. 10

6.3.2.3.6 Logs and charts shall contain notations of any unusual water events with the whirlpool spas and corrective actions taken. 10

6.3.2.3.7 Logs and charts shall be retained for at least 12 months. 10

6.3.3 Private Cabin Operations

6.3.3.1 Maintenance

6.3.3.1.1 Private whirlpool spas located in individual passenger cabins shall be cleaned and disinfected, including associated recirculation systems, between occupancies or weekly, whichever is more frequent. 10

6.3.3.1.2 Manufacturer's operation and maintenance instructions shall be available to personnel that service the units. 10

6.3.4 Individual Hydrotherapy Pools

6.3.4.1 Maintenance

- 6.3.4.1.1 Individual hydrotherapy pools shall be cleaned and disinfected, including associated recirculation systems, between occupancies customers. 10
- 6.3.4.1.2 Manufacturer's operation and maintenance instructions shall be available available to personnel that service the units. 10

6.4 Safety

6.4.1 Public Swimming Pools and Whirlpool Spas

6.4.1.1 Signs and Markings

- 6.4.1.1.1 Safety signs shall be provided for public swimming pools and whirlpool spas. 10
- 6.4.1.1.2 ~~Depth markers shall be installed for every 1 m (3 feet) in change of depth and shall be displayed prominently so they can be seen from the deck and from in the pool.~~ The depth of each pool shall be displayed prominently, so that it can be seen from the deck and in the pool. Depth markers should be labeled either in feet or meters, or both. Additionally, depth markers shall be installed for every 1 m (3 feet) change in depth. 10
- 6.4.1.1.3 A sign shall be installed near the whirlpool spas that lists standard safety precautions and risks, warning against use by particularly susceptible people, such as those who are immunocompromised. 10

6.4.2 Spa Pool (an independent pool with combined elements of a whirlpool spa)

- 6.3.5.1 The spa pool halogen shall be operated and maintained according to whirlpool spa standards provided in sections 6.3.1.1.1-6.3.2.3.7, except that daily water change in section 6.3.1.2 is not required. If the spa pool uses only seawater the daily shock in section 6.3.2.1.2 is also not required. 9/10
- 6.3.6 For any pool with an attached whirlpool spa, where the water, recirculation system equipment, or filters are shared with the spa, all elements of the whirlpool spa standards shall apply to the pool. 9/10

6.4.1.2 Equipment

- 6.4.1.2.1 Easy access shepherd's hook and approved floatation device (with a length of line ½ the pool width or 16 m (50 feet)) shall be provided at a prominent location near each public swimming pool. 10
- 6.4.1.2.2 Anti-vortex entrapment drain covers shall be provided on swimming pools and whirlpool spas. An approved cover shall have either the plumbing/engineering approving organization stamp and flow rate affixed to the cover, or a letter maintained onboard the vessel certifying that the cover meets the safety requirements outlined in ASME/ANSI A112.19.8M or an equivalent standard. 10
- 6.4.1.2.3 A temperature control mechanism to prevent the temperature from exceeding 40°C (104°F) shall be provided on whirlpool spas. 10

6.4.1.3 Restrictions

- 6.4.1.3.1 Children in diapers or who are not toilet trained are not permitted in the public swimming pools and whirlpool spas. 10

7.0 Food Safety

- 7.1 Reserved
- 7.2 Personnel
- 7.3 Food
- 7.4 Equipment and Utensils
- 7.5 Warewashing and Laundering
- 7.6 Poisonous and Toxic Materials
- 7.7 Facilities

7.1 Reserved

7.2 Personnel

7.2.1 Food-Safety Management

7.2.1.1 Food-Safety Knowledge

7.2.1.1.1

Based on the risks of foodborne illness inherent to the food operation, during inspections and upon request the person in charge of the food operations on the vessel shall demonstrate to the VSP knowledge of foodborne disease prevention, application of the Hazard Analysis Critical Control Point principles, and the food-safety guidelines in this manual. The person in charge shall demonstrate this knowledge by compliance with these guidelines, by being a domestically or foreign certified food protection manager who has shown proficiency of required information through passing a test that is part of an accredited program, or by responding correctly to the inspector's questions as they relate to the specific food operation. The areas of knowledge shall include:

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(1) Describing the relation between prevention of foodborne disease and personal hygiene of a food employee;

(2) Explaining the responsibility of the person in charge of preventing the transmission of foodborne disease by a food employee who has a disease or medical condition that may cause foodborne disease;

(3) Describing the symptoms associated with the diseases that are transmissible through food;

(4) Explaining the significance of the relation between maintaining the time and temperature of potentially hazardous food;

(5) Explaining the hazards involved in the consumption of

raw or undercooked meat, poultry, eggs, and fish;

(6) Stating the required food temperatures and times for safe cooking of potentially hazardous food, including meat, poultry, eggs, and fish;

(7) Stating the required temperatures and times for the safe refrigerated storage, hot holding, cooling, and reheating of potentially hazardous food;

(8) Describing the relation between prevention of foodborne illness and management and control of the following: cross-contamination, hand contact with ready-to-eat foods, handwashing, and maintaining the food operations in a clean condition and in good repair;

(9) Explaining the relation between food safety and providing equipment that is sufficient in number and capacity, and properly designed, constructed, located, installed, operated, maintained, and cleaned;

(10) Explaining correct procedures for cleaning and sanitizing utensils and food-contact surfaces of equipment;

(11) Identifying poisonous or toxic materials on the vessel and the procedures necessary to ensure they are safely stored, dispensed, used, and disposed of according to law; and

(12) Identifying critical-control points in the operation from purchasing through service that when not controlled may contribute to the transmission of foodborne illness and explaining steps taken to ensure the points are controlled in accordance with the guidelines in this manual.

7.2.1.2 Food-Safety Duties

7.2.1.2.1

The person in charge of the food operations on the vessel shall ensure that:

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(1) Food operations are not conducted in a room used as living or sleeping quarters;

(2) Persons unnecessary to the food operation are not allowed in the food preparation, food storage, or warewashing areas, except that brief visits and tours may be authorized if steps are taken to ensure that exposed food; clean equipment, utensils, and linens; and unwrapped single-service and single-use articles are protected from contamination;

(3) Employees and other persons such as delivery and maintenance persons and pesticide applicators entering the food preparation, food storage, and warewashing areas comply with the guidelines in this manual;

(4) Food employees are effectively cleaning their hands, by routinely monitoring the employees' handwashing;

(5) Employees are observing foods as they are received to determine that they are from approved sources, delivered at the required temperatures, protected from contamination, unadulterated, and accurately presented, by routinely monitoring the employees' observations and periodically evaluating foods upon their receipt;

(6) Employees are properly cooking potentially hazardous food, being particularly careful in cooking foods known to cause severe foodborne illness and death, such as eggs and comminuted meats, through daily oversight of the employees' routine monitoring of the cooking temperatures using appropriate temperature measuring devices properly scaled and calibrated;

(7) Employees are using proper methods to rapidly cool potentially hazardous foods that are not held hot or are not for consumption within 4 hours, through daily oversight of the employees' routine monitoring of food temperatures during cooling;

(8) Consumers who order raw or partially cooked ready-to-eat foods of animal origin are informed that the food is not cooked sufficiently to ensure its safety;

(9) Employees are properly sanitizing cleaned multiuse

equipment and utensils before they are reused, through routine monitoring of solution temperature and exposure time for hot water sanitizing, and chemical concentration, pH, temperature, and exposure time for chemical sanitizing;

(10) Consumers are notified that clean tableware is to be used when they return to self-service areas such as salad bars and buffets;

(11) Employees are preventing cross-contamination of ready-to-eat food with bare hands by properly using suitable utensils such as deli tissue, spatulas, tongs, single-use gloves, or dispensing equipment; and

(12) Employees are properly trained in food safety as it relates to their assigned duties.

7.2.2 Employee Health

7.2.2.1 Communicable Diseases and Symptoms

- | | | | |
|-----------|---|----|---|
| 7.2.2.1.1 | Food employees suspected of, diagnosed with, or exposed to any communicable diseases caused by <i>Salmonella typhi</i> , <i>Shigella</i> spp., <i>Escherichia coli</i> O157:H7, or hepatitis A virus, or other communicable diseases that can be transmitted by food, shall be restricted from working with exposed food, warewashing, clean equipment, utensils, and linens, and unwrapped single-service and single-use articles. <u>in any food or food related areas or operations, including working with exposed food, warewashing, equipment, utensils, linens, single-service and single-use articles. The restricted individual shall not be allowed to return to the above duties until they are symptom free for a minimum of 48 hours.</u> | 11 | C |
| 7.2.2.1.2 | Food employees who have conditions or symptoms of boils, open sores, infected wounds, diarrhea, jaundice, fever, vomiting, sore throat with fever, or discharges from the nose or mouth shall report these conditions or symptoms to the vessel's medical staff and shall be restricted from working with exposed food, warewashing, clean equipment, utensils, and linens, and unwrapped single-service and single-use articles. | 11 | C |
| 7.2.2.1.3 | Food employees experiencing persistent sneezing, coughing, or a runny nose that causes discharges from the eyes, nose, or mouth may not work with exposed food, warewashing clean equipment, utensils, and table linens; or unwrapped single-service or single-use articles. | 11 | C |

7.2.2.1.4 The restriction may be removed when the person in charge of the food operation obtains written approval from the vessel's physician or equivalent medical staff. **11 C**

7.2.2.1.5 A written or electronic record of both the work restriction and release from restriction shall be maintained onboard the vessel for 12 months for inspection review. **02**

7.2.3 Employee Cleanliness

7.2.3.1 Hands and Arms

7.2.3.1.1 Food employees shall keep their hands and exposed portions of their arms clean. **12 C**

7.2.3.1.2 Food employees shall clean their hands and exposed portions of their arms with a cleaning compound in a handwashing sink by vigorously rubbing together the surfaces of their lathered hands and arms for at least 20 seconds and thoroughly rinsing with clean water. Employees shall pay particular attention to the areas underneath the fingernails and between the fingers. **12 C**

7.2.3.1.3 Food employees shall clean their hands and exposed portions of their arms immediately before engaging in food preparation including working with exposed food, clean equipment and utensils, and unwrapped single-service and single-use articles and: **12 C**

(1) After touching bare human body parts other than clean hands and clean, exposed portions of arms;

(2) After using the toilet room;

(3) After coughing, sneezing, using a handkerchief or disposable tissue, using tobacco, eating, or drinking;

(4) After handling soiled equipment or utensils;

(5) During food preparation, as often as necessary to remove soil and contamination and to prevent cross-contamination when changing tasks;

(6) When switching between working with raw food and working with ready-to-eat food; and

(7) After engaging in other activities that contaminate the hands.

7.2.3.1.4	A hand sanitizer and a chemical hand sanitizing solution used as a hand dip, if used, shall comply with applicable formulation and use laws. <u>A hand antiseptic or a hand antiseptic used as a hand dip, or a hand antiseptic soap shall: comply with applicable formulation and use laws under FDA or 21 CFR 170.39, 178, 182, 184, or 186.</u>	14	
7.2.3.1.5	A hand sanitizer and a chemical hand sanitizing solution used as a hand dip shall be applied only to hands that are cleaned. <u>A hand antiseptic or a hand antiseptic used as a hand dip, or a hand antiseptic soap shall only be applied to hands that are cleaned.</u>	12	C
7.2.3.2	Fingernails		
7.2.3.2.1	Food employees shall keep their fingernails trimmed, filed, and maintained so the edges and surfaces are cleanable and not rough.	14	
7.2.3.2.2	<i>Unless wearing intact gloves in good repair, a food employee may not wear fingernail polish or artificial fingernails when preparing exposed food.</i>	14	
7.2.3.3	Jewelry		
7.2.3.3.1	While preparing food, food employees may not wear jewelry on their arms and hands.	14	
7.2.3.3.2	<i>A plain ring such as a smooth simple wedding band may be allowed to be worn by food employees.</i>		
7.2.3.4	Outer Clothing		
7.2.3.4.1	Food employees shall wear clean outer clothing to prevent contamination of food, equipment, utensils, linens, and single-service and single-use articles.	14	
7.2.4	Hygienic Practices		
7.2.4.1	Eating, Drinking, or Using Tobacco		
7.2.4.1.1	An employee shall eat, drink, or use any form of tobacco only in designated areas where the contamination of exposed food; clean equipment, utensils, and linens; unwrapped single-service and single-use articles; or other items needing protection can not result.	12	C

7.2.4.2 Hair Restraints

7.2.4.2.1 Food employees shall wear hair restraints such as hats, hair coverings or nets, beard restraints, and clothing that covers body hair, that are designed and worn to effectively keep their hair from contacting exposed food; clean equipment, utensils, and linens; and unwrapped single-service and single-use articles. 14

7.2.4.2.2 *This section does not apply to food employees such as counter staff who serve only beverages and wrapped or packaged foods, hostesses, and wait staff if they present a minimal risk of contaminating exposed food; clean equipment, utensils, and linens; and unwrapped single-service and single-use articles.*

7.3 Food

7.3.1 Food Condition

7.3.1.1 Safe and Unadulterated

7.3.1.1.1 Food shall be safe and unadulterated. 15 C

7.3.2 Food Sources

7.3.2.1 Lawful Sourcing

7.3.2.1.1 Food shall be obtained from sources that comply with applicable local, state, federal, or country of origin's statutes, regulations, and ordinances. 15 C

7.3.2.1.2 Food prepared in a private home may not be used or offered for human consumption on a vessel. 15 C

7.3.2.1.3 Fish, other than molluscan shellfish, that are intended for consumption in their raw form may be served if they are obtained from a supplier that freezes the fish to destroy parasites; or frozen on the vessel and records are retained. 15 C

7.3.2.1.4 Whole-muscle, intact beef steaks that are intended for consumption in an undercooked form without a consumer advisory shall be: 15 C

(1) Obtained from a food-processing plant that packages the steaks and labels them to indicate they meet the definition of whole-muscle, intact beef; or

(2) If individually cut on a vessel, cut from whole-muscle intact beef that is labeled by a food-processing plant to indicate the beef meets the definition of whole-muscle, intact beef, and prepared so they remain intact.

- 7.3.2.1.5 Food in a hermetically sealed container shall be obtained from a food-processing plant that is regulated by the food regulatory agency that has jurisdiction over the plant. 15 C
- 7.3.2.1.6 ~~Fluid milk and milk products shall be obtained from sources that comply with Grade A standards as specified in law.~~ U.S. supplied fluid milk and milk products shall be obtained from sources that comply with Grade A standards as specified in law. Non-U.S. sourced fluid milk and milk products shall be obtained from sources which meet or exceed the standards of the health authorities from the source Country. 15 C
- 7.3.2.1.7 Fish and Molluscan Shellfish Sources: 15 C
- (1) Fish that are received for service shall be commercially and legally caught or harvested or otherwise approved for service by the VSP.
- (2) Molluscan shellfish that are recreationally caught may not be received for service.
- (3) Molluscan shellfish shall be obtained from sources according to law and the requirements specified in the U.S. Department of Health and Human Services, Public Health Service, Food and Drug Administration, National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish or equivalent standards; and received in interstate commerce shall be from sources that are listed in the FDA Interstate Certified Shellfish Shippers List or equivalent foreign certified shellfish listing.
- 7.3.2.1.8 Mushroom species picked in the wild shall be obtained from sources where each mushroom is individually inspected and found to be safe by an approved mushroom identification expert. *This requirement does not apply to:* 15 C
- (1) *Cultivated wild mushroom species that are grown, harvested, and processed in an operation that is regulated by the food regulatory agency that has jurisdiction over the operation; or*
- (2) *Wild mushroom species if they are in packaged form and are the product of a food-processing plant that is regulated by the food regulatory agency that has jurisdiction over the plant.*
- 7.3.2.1.9 If game animals are received for sale or service they shall be: 15 C
- (1) Commercially raised for food and raised, slaughtered, and processed under law; or

(2) Under a voluntary inspection program administered by the USDA for game animals such as exotic animals (reindeer, elk, deer, antelope, water buffalo, or bison) that are inspected and approved in accordance with 9 CFR 352 Voluntary Exotic Animal Program or rabbits that are "inspected and certified" in accordance with 9 CFR 354 Rabbit Inspection Program.

(3) A game animal may not be received for service if it is a species of wildlife that is listed in 50 CFR 17 Endangered and Threatened Wildlife and Plants.

7.3.2.2 Receiving Condition

7.3.2.2.1 Receiving temperatures shall be as follows: **16 C**

(1) Refrigerated, potentially hazardous food shall be at a temperature of 7°C (45°F) or below when received.

(2) If a temperature other than 7°C (45°F) for a potentially hazardous food is specified in law governing its distribution, such as laws governing milk, molluscan shellfish, and shell eggs, the food may be received at the specified temperature.

(3) Potentially hazardous food that is cooked and received hot shall be at a temperature of 60°C (140°F) or above.

(4) A food that is labeled frozen and shipped frozen by a food-processing plant shall be received frozen.

(5) Upon receipt, potentially hazardous food shall be free of evidence of previous temperature abuse.

7.3.2.2.2 Food may not contain unapproved food additives or additives that exceed amounts specified in law. **15 C**

7.3.2.2.3 Shell eggs shall be received clean and sound and may not exceed the restricted egg tolerances specified in law. **15 C**

7.3.2.2.4 Eggs and milk products shall be received as follows: **15 C**

(1) Liquid, frozen, and dry eggs and egg products shall be obtained pasteurized.

(2) Fluid and dry milk and milk products complying with Grade A standards as specified in law shall be obtained pasteurized.

(3) Frozen milk products, such as ice cream, shall be obtained pasteurized as specified in 21 CFR 135 Frozen Desserts.

	(4) Cheese shall be obtained pasteurized unless alternative procedures to pasteurization are specified in the CFR, such as 21 CFR 133 Cheeses and Related Cheese Products, for curing certain cheese varieties.		
7.3.2.2.5	Food packages shall be in good condition and protect the integrity of the contents so that the food is not exposed to adulteration or potential contaminants. Canned goods with dents on end or side seams may not be used.	15	C
7.3.2.2.6	Ice for use as a food or a cooling medium shall be made from drinking water.	15	C
7.3.2.2.7	Raw shucked shellfish shall be obtained in nonreturnable packages which bear a legible label as specified in the National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish.	15	C
7.3.2.2.8	Shellstock shall be obtained in containers bearing legible source identification tags or labels that are affixed by the harvester and each dealer that depurates, ships, or reships the shellstock, as specified in the National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish.	15	C
7.3.2.2.9	Shellstock shall be reasonably free of mud, dead shellfish, and shellfish with broken shells when received by a vessel. Dead shellfish or shellstock with badly broken shells shall be discarded.	19	
7.3.2.3	Maintaining Molluscan Shellfish Identification		
7.3.2.3.1	Shucked molluscan shellfish may not be removed from the container in which they are received other than immediately before preparation for service.	15	C
7.3.2.3.2	Shellstock shellfish tags shall:	15	C
	(1) Remain attached to the container in which the shellstock are received until the container is empty.		
	(2) Be maintained by retaining shellstock tags or labels for 90 calendar days from the date the container is emptied by using an approved record keeping system that keeps the tags or labels in chronologic order correlated to the date when the shellstock are served.		

7.3.3 Food Protection

7.3.3.1 Employee Contamination

7.3.3.1.1 Food employees shall wash their hands. 12 C

7.3.3.1.2 *Except when washing fruits and vegetables or when otherwise approved*, food employees may not contact exposed, ready-to-eat food with their bare hands and shall use suitable utensils such as deli tissue, spatulas, tongs, single-use gloves, or dispensing equipment. 12 C

7.3.3.1.3 Food employees shall minimize bare hand and arm contact with exposed food that is not in a ready-to-eat form. 12 C

7.3.3.1.4 A food employee shall not use a utensil more than once to taste food that is to be served. 12 C

7.3.3.2 Food and Ingredient Contamination

7.3.3.2.1 Food shall be protected from cross-contamination by: 18 C

(1) Physically separating raw animal foods during storage, preparation, holding, and display from raw ready-to-eat food including other raw animal food such as fish for sushi or molluscan shellfish, or other raw ready-to-eat food such as vegetables, and cooked ready-to-eat food; so products do not physically touch, and so as to prevent dripping of one product into another;

(2) *Except when combined as ingredients*, separating types of raw animal foods from each other such as beef, fish, lamb, pork, and poultry during storage, preparation, holding, and display by using separate equipment for each type, or arranging each type of food in equipment so that cross-contamination of one type with another is prevented, and preparing each type of food at different times or in separate areas;

(3) Cleaning and sanitizing equipment and utensils;

(4) Storing the food in packages, covered containers, or wrappings;

(5) Cleaning hermetically sealed containers of food of visible soil before opening;

(6) Protecting food containers that are received packaged together in a case or overwrap from cuts when the case or overwrap is opened;

(7) Separating damaged, spoiled, or recalled food being held on the vessel; and

(8) Separating fruits and vegetables, before they are washed, from ready-to-eat food.

7.3.3.2.2 *Storing the food in packages, covered containers, or wrappings does not apply to:*

(1) *Whole, uncut, raw fruits and vegetables and nuts in the shell, that require peeling or hulling before consumption;*

(2) *Primal cuts, quarters, or sides of raw meat or slab bacon that are hung on clean, sanitized hooks or placed on clean, sanitized racks;*

(3) *Whole, uncut, processed meats such as country hams, and smoked or cured sausages that are placed on clean, sanitized racks;*

(4) *Food being cooled; or*

(5) *Shellstock.*

7.3.3.2.3 Working containers holding food or food ingredients that are removed from their original packages for use on the vessel, such as cooking oils, flour, herbs, potato flakes, salt, spices, and sugar shall be identified with the common name of the food. *Containers holding food that can be readily and unmistakably recognized such as dry pasta need not be identified.* 19

7.3.3.2.4 Pasteurized eggs or egg products shall be substituted for raw shell eggs in the preparation of foods such as Caesar salad, hollandaise, or Béarnaise sauce, mayonnaise, eggnog, ice cream, and egg-fortified beverages or dessert items that are not cooked. 18 C

7.3.3.2.5 Raw fruits and vegetables shall be thoroughly washed in water to remove soil and other contaminants before being cut, combined with other ingredients, cooked, served, or offered for human consumption in ready-to-eat form. 19

7.3.3.2.6 *Fruits and vegetables may be washed by using chemicals specified under 21 CFR 173.315.*

7.3.3.3 **Ice as Coolant**

7.3.3.3.1 After use as a medium for cooling the exterior surfaces of food such as melons or fish, packaged foods such as canned beverages or cooling coils and tubes of equipment, ice may not be used as food. 19

7.3.3.3.2	Packaged food may not be stored in direct contact with ice or water if the food is subject to the entry of water because of the nature of its packaging, wrapping, or container, or its positioning in the ice or water.	19	
7.3.3.3.3	Except as specified below, unpackaged food may not be stored in direct contact with undrained ice.	19	
7.3.3.3.4	<i>Whole, raw fruits or vegetables; cut, raw vegetables such as celery or carrot sticks, or cut potatoes; and tofu may be immersed in ice or water.</i>		
7.3.3.3.5	<i>Raw chicken and raw fish that are received immersed in ice in shipping containers may remain in that condition while in storage awaiting preparation, display, or service.</i>		
<u>7.3.3.3.6</u>	<u><i>Other unpackaged foods in a raw, cooked, or partially cooked state may be immersed in ice as part of an ongoing meal service process, such as liquid egg product, individual eggs, pasta, and reconstituted powdered mixes.</i></u>		
7.3.3.4	Equipment, Utensils, and Linens		
7.3.3.4.1	Food shall only contact surfaces of equipment and utensils that are cleaned and sanitized.	26	C
7.3.3.4.2	During pauses in food preparation or dispensing, food preparation and dispensing utensils shall be stored:	19	
	(1) In the food with their handles above the top of the food and the container;		
	(2) In food that is not potentially hazardous with their handles above the top of the food within containers or equipment that can be closed, such as bins of sugar, flour, or cinnamon;		
	(3) On a clean portion of the food preparation table or cooking equipment only if the in-use utensil and the food-contact surface of the food preparation table or cooking equipment are frequently cleaned and sanitized; <u>are cleaned and sanitized at least every four hours;</u>		
	(4) In running water of sufficient velocity to flush particulates to the drain, if used with moist food such as ice cream or mashed potatoes;		
	(5) In a clean, protected location if the utensils, such as ice scoops, are used only with a food that is not potentially hazardous; or		
	(6) In a container of water if the water is maintained at a temperature of at least 60°C (140°F) and the container is frequently cleaned and sanitized.		

7.3.3.4.3	Linens and napkins may not be used in contact with food <i>unless they are used to line a container for the service of foods and the linens and napkins are replaced each time the container is refilled for a new consumer.</i>	19
7.3.3.4.4	Wiping cloths shall be restricted to the following:	25
	(1) Cloths that are in use for wiping food spills shall be used for no other purpose.	
	(2) Cloths used for wiping food spills shall be dry and used for wiping food spills from tableware and single-service articles or wet and cleaned, stored in a chemical sanitizer, and used for wiping spills from food-contact and nonfood-contact surfaces of equipment.	
	(3) Dry or wet cloths that are used with raw animal foods shall be kept separate from cloths used for other purposes, and wet cloths used with raw animal foods shall be kept in a separate sanitizing solution.	
	(4) Wet wiping cloths used with a freshly made sanitizing solution and dry wiping cloths shall be free of food debris and visible soil.	
7.3.3.4.5	Gloves shall be used as follows:	19
	(1) If used, single-use gloves shall be used for only one task such as working with ready-to-eat food or with raw animal food, used for no other purpose, and discarded when damaged or soiled or when interruptions occur in the operation.	
	(2) Slash-resistant gloves that are used to protect the hands during operations requiring cutting shall be used in direct contact only with food that is subsequently cooked such as frozen food or a primal cut of meat.	
	<i>(3) Slash-resistant gloves may be used with ready-to-eat food that will not be subsequently cooked if the slash-resistant gloves have a smooth, durable, and nonabsorbent outer surface; or if the slash-resistant gloves are covered with a smooth, durable, nonabsorbent glove or a single-use glove.</i>	
	(4) Cloth gloves may not be used in direct contact with food unless the food is subsequently cooked such as frozen food or a primal cut of meat.	
7.3.3.4.6	Procedures for second portions and refills shall be as follows:	19

(1) Except for refilling a consumer's drinking cup or container without contact between the pouring utensil and the lip-contact area of the drinking cup or container, food employees may not use tableware, including single-service articles, soiled by the consumer, to provide second portions or refills.

(2) Except as specified below, self-service consumers may not be allowed to use soiled tableware, including single-service articles, to obtain additional food from the display and serving equipment.

(3) *Drinking cups and containers may be reused by self-service consumers if refilling is a contamination-free process.*

7.3.3.5 Food Storage and Preparation

7.3.3.5.1 Food shall be protected from contamination by storing the food: 19

(1) In a clean, dry location;

(2) Where it is not exposed to splash, dust, or other contamination; and

(3) At least 15 centimeters (6 inches) above the deck.

7.3.3.5.2 Food may not be stored: 19

(1) In locker rooms;

(2) In toilet rooms;

(3) In dressing rooms;

(4) In garbage rooms;

(5) In mechanical rooms;

(6) Under sewer lines that are not continuously sleeve welded;

(7) Under leaking water lines, including leaking automatic fire sprinkler heads, or under lines on which water has condensed;

(8) Under open stairwells; or

(9) Under other sources of contamination from nonfood items such as ice blocks, ice carvings and flowers.

7.3.3.5.3	Potentially hazardous food dispensed through a vending machine shall be in the package in which it was placed at the galley or food-processing plant at which it was prepared.	19
7.3.3.5.4	During preparation, unpackaged food shall be protected from environmental sources of contamination such as rain.	19
7.3.3.6	Food Display and Service	
7.3.3.6.1	Food on display shall be protected from contamination by the use of packaging; counter, service line, or salad bar food guards; display cases; or other effective means.	19
7.3.3.6.2	Condiments shall be protected from contamination:	19
	(1) By being kept in dispensers that are designed to provide protection, protected food displays provided with the proper utensils, original containers designed for dispensing, or individual packages or portions; and	
	(2) Condiments at a vending machine location shall be in individual packages or provided in dispensers that are filled at an approved location, such as the galley that provides food to the vending machine location, a food-processing plant, or a properly equipped facility that is located on the site of the vending machine location.	
7.3.3.6.3	Consumer self-service operations, such as salad bars and buffets, for unpackaged ready-to-eat foods:	19
	(1) Shall be provided with suitable utensils or effective dispensing methods that protect the food from contamination; and	
	(2) Shall be monitored by food employees trained in safe operating procedures.	
7.3.3.6.4	After being served and in the possession of a consumer <u>or being placed on a buffet service line</u> , food that is unused or returned by the consumer:	15 C
	(1) May not be offered as food for human consumption.	
	(2) Except a <i>container of food that is not potentially hazardous may be transferred from one consumer to another if the food is dispensed so that it is protected from contamination and the container is closed between uses, such as a narrow-neck bottle containing catsup, steak sauce, or wine; or the food, such as crackers, salt, or pepper, is in an unopened original package and is maintained in sound condition.</i>	

7.3.3.7 Other Contamination

7.3.3.7.1 Food shall be protected from contamination that may result from a factor or source such as seawater, bilge water, or hydraulic or fuel lines. 19

7.3.4 Pathogen Destruction

7.3.4.1 Cooking Temperatures / Times

7.3.4.1.1 Raw animal foods such as eggs, fish, meat, poultry, and foods containing these raw animal foods, shall be cooked to heat all parts of the food to a temperature and for a time that complies with one of the following methods based on the food that is being cooked: 16 C

(1) 63°C (145°F) or above for 15 seconds for raw shell eggs that are broken and prepared in response to consumers' orders and for immediate service, and fish, meat, and pork including game animals commercially raised for food and game animals under a voluntary inspection program;

(2) 68°C (155°F) for 15 seconds or equivalent temperature-time combination for ratites and injected meats; the following if they are comminuted: fish, meat, game animals commercially raised for food, and game animals under a voluntary inspection program; and raw eggs that are not prepared for immediate service; or

(3) 74°C (165°F) or above for 15 seconds for poultry, wild game animals not specified in (2), stuffed fish, stuffed meat, stuffed pasta, stuffed poultry, stuffed ratites, or stuffing containing fish, meat, poultry, or ratites.

(4) Whole beef roasts, corned beef roasts, pork roasts, and cured pork roasts such as ham, shall be cooked to 63°C (145°F) or above for 15 seconds or to equivalent temperature-time combination in ovens operated in accordance with the specifications in Annex 13.6.

(5) *A raw or undercooked whole-muscle, intact beef steak may be served or offered for sale in a ready-to-eat form if the steak is labeled to indicate that it meets the definition of "whole-muscle, intact beef;" and the steak is cooked on both the top and bottom to a surface temperature of 63°C (145°F) or above and a cooked color change is achieved on all external surfaces.*

(6) *A raw animal food such as raw fish, raw-marinated*

fish, raw molluscan shellfish, or steak tartare; or a partially cooked food such as lightly cooked fish, soft cooked eggs, or rare meat other than whole-muscle, intact beef steaks, may be served or offered for sale in a ready-to-eat form if the consumer is informed by the written consumer advisory; or the VSP grants a variance from the cooking recommendations based on a HACCP plan that is submitted by the vessel and approved. The HACCP plan must document scientific data or other information showing that a lesser time and temperature regimen results in a safe food. The HACCP plan must verify that equipment and procedures for food preparation and training of food employees meet the conditions of the variance.

7.3.4.1.2 Raw animal foods cooked in a microwave oven shall be: **16 C**

(1) Rotated or stirred throughout or midway during cooking to compensate for uneven distribution of heat;

(2) Covered to retain surface moisture;

(3) Heated to a temperature of at least 74°C (165°F) in all parts of the food; and

(4) Allowed to stand covered for 2 minutes after cooking to obtain temperature equilibrium.

7.3.4.1.3 *Fruits and vegetables that are cooked for hot holding shall be cooked to a temperature of 60°C (140°F).* **17**

7.3.4.2 Parasite Destruction

7.3.4.2.1 *Before service in ready-to-eat form, raw, raw-marinated, partially cooked, or marinated-partially cooked fish other than molluscan shellfish:* **16 C**

(1) *Shall be frozen throughout to a temperature of -20°C (-4°F) or below for 168 hours (7 days) in a freezer; or -35°C (-31°F) or below for 15 hours in a blast freezer.*

(2) *If the fish are tuna of the species *Thunnus alalunga*, *T. albacares* (yellowfin tuna), *T. atlanticus*, *T. maccoyii* (bluefin tuna, southern), *T. obesus* (bigeye tuna), or *T. thynnus* (bluefin tuna, northern), the fish may be served in a raw, raw-marinated, or partially cooked ready-to-eat form without freezing.*

(3) *If foods, such as ~~unpasteurized caviar~~, gravlax, seviche, **fish** carpaccio, or sashimi, are prepared in a food processing plant and certified as parasite free, they may be served raw, raw-marinated, or partially cooked ready-*

7.3.4.2.2	<p><i>to-eat without freezing the product on-board the vessel.</i></p> <p>If raw, raw-marinated, partially cooked, or marinated-partially cooked fish are served in ready-to-eat form:</p> <p>(1) The person in charge shall record the freezing temperature and time to which the fish are subjected and shall retain the records on the vessel for 90 calendar days beyond the time of service or sale of the fish; or</p> <p>(2) If the fish are frozen by a supplier, a written agreement or statement from the supplier stipulating that the fish supplied are frozen to a safe temperature and a time. <u>If the fish are frozen by a supplier, a written letter from the supplier which specifies the fish species involved and both the temperature to which the fish was frozen and the total time period at that temperature. If the supplier provides any of the same fish species to the vessel in a fresh state, there shall be some designation on the outer packaging for the parasite-free fish.</u></p>	17
7.3.4.3	Reheating	
7.3.4.3.1	<i>Cooked and refrigerated food that is prepared for immediate service in response to an individual consumer order, such as a roast beef sandwich au jus, may be served at any temperature.</i>	
7.3.4.3.2	Potentially hazardous food that is cooked, cooled, and reheated for hot holding shall be reheated so that all parts of the food reach a temperature of at least 74°C (165°F) for 15 seconds.	16 C
7.3.4.3.3	If reheated in a microwave oven for hot holding, potentially hazardous food shall be reheated so that all parts of the food reach a temperature of at least 74°C (165°F) and the food is rotated or stirred, covered, and allowed to stand covered for 2 minutes after reheating.	16 C
7.3.4.3.4	Ready-to-eat potentially hazardous food taken from a commercially processed, hermetically sealed container, or from an intact package from a food processing plant that is inspected by the food regulatory authority that has jurisdiction over the plant, shall be heated to a temperature of at least 60°C (140°F) for hot holding.	17
7.3.4.3.5	Reheating for hot holding shall be done rapidly and the time the food is between 5°C (41°F) and 74°C (165°F) may not exceed 2 hours.	16 C
7.3.4.3.6	Potentially hazardous food may not be reheated more than once.	17

7.3.4.3.7 *Remaining unsliced portions of roasts of beef that are cooked on the vessel may be reheated for hot holding using the oven parameters and minimum time and temperature conditions used in the original cooking process.*

7.3.5 Food Holding Temperatures and Times

7.3.5.1 Frozen, Slacking and Thawing Procedures

7.3.5.1.1 Stored frozen foods shall be maintained frozen. 17

7.3.5.1.2 Frozen potentially hazardous food that is slacked to moderate the temperature shall be held: 17

(1) Under refrigeration that maintains the food temperature at 5°C (41°F) or less; or

(2) At any temperature if the food remains frozen.

7.3.5.1.3 Potentially hazardous food shall be thawed: 17

(1) Under refrigeration that maintains the food temperature at 5°C (41°F) or less; or

(2) Completely submerged under running water at a water temperature of 21°C (70°F) or below, with sufficient water velocity to agitate and float off loose particles in an overflow, and for a period of time that does not allow thawed portions of ready-to-eat food to rise above 5°C (41°F), or for a period of time that does not allow thawed portions of a raw animal food requiring cooking to be above 5°C (41°F) for more than 4 hours including the time the food is exposed to the running water, the time needed for preparation for cooking, or the time it takes under refrigeration to lower the food temperature to 5°C (41°F); or

(3) As part of a cooking process if the food that is frozen is cooked, or thawed in a microwave oven.

(4) *Using any procedure if a portion of frozen ready-to-eat food is thawed and prepared for immediate service in response to an individual consumer's order.*

7.3.5.2 Food Cooling

7.3.5.2.1 Cooked potentially hazardous food shall be cooled: 16 C

(1) Within 2 hours, from 60°C (140°F) to 21°C (70°F); and

(2) Within 4 hours, from 21°C (70°F) to 5°C (41°F) or less.

7.3.5.2.2 Potentially hazardous food shall be cooled within 4 hours to 5°C (41°F) or less, if prepared from ingredients at ambient temperature, such as reconstituted foods and canned tuna. 16 C

7.3.5.2.3 A potentially hazardous food received in compliance with laws allowing a temperature above 5°C (41°F) during shipment from the supplier shall be cooled within 4 hours to 5°C (41°F) or less. 16 C

7.3.5.2.4 *Shell eggs need not comply with the cooling time if the eggs are placed immediately upon their receipt in refrigerated equipment that is capable of maintaining food at 5°C (41°F) or less.*

7.3.5.2.5 Cooling shall be accomplished using one or more of the following methods based on the type of food being cooled: 17

(1) Placing the food in shallow pans; separating the food into smaller or thinner portions; using blast coolers, freezers, or other rapid cooling equipment; stirring the food in a container placed in an ice water bath; using containers that facilitate heat transfer; adding ice as an ingredient; or other effective methods.

(2) When placed in cooling or cold-holding equipment, food containers in which food is being cooled shall be arranged in the equipment to provide maximum heat transfer through the container walls; and loosely covered, or uncovered if protected from overhead contamination, during the cooling period to facilitate heat transfer from the surface of the food.

7.3.5.2.6 Logs documenting cooked potentially hazardous food cooling temperatures and times from the starting points designated in 7.3.5.2.1 thru the control points at 2 and 6 hours shall be maintained onboard the vessel for a period of 30 days from the date the food was placed in a cooling process. Logs documenting cooling of potentially hazardous foods prepared from ingredients at ambient temperatures, with the start time to the time when 5 °C (41 °F) is reached, shall also be maintained for a 30 day period, beginning with the day of preparation. 17

7.3.5.3 Food Holding Temperatures and Times

7.3.5.3.1 *Except during preparation, cooking, or cooling, or when time is used as the public health control, potentially hazardous food shall be maintained:* 16 C

(1) At 60°C (140°F) or above, *except that roasts may be held at a temperature of 54°C (130°F);* or

(2) At 5°C (41°F) or less.

7.3.5.3.2 Refrigerated, ready-to-eat, potentially hazardous food: **16 C**

(1) Prepared on a vessel and held refrigerated for more than 24 hours shall be clearly marked at the time of preparation to indicate the date or day by which the food shall be consumed, which is, ~~including the day of preparation,~~ 7 calendar days or fewer from the day the food is prepared. The day of preparation is counted as day 1.

(2) A container of refrigerated, ready-to-eat potentially hazardous food prepared and packaged by a food processing plant and held on the vessel after opening for more than 24 hours shall be clearly marked, at the time the original container is opened, to indicate the date by which the food shall be consumed which is, including the day the original container is opened, 7 calendar days or fewer after the original container is opened. The day of opening is counted as day 1.

(3) The date marking requirement can be accomplished with a calendar date, day, color-code, or other system, provided it is effective. Hard and semisoft aged cheeses, and pasteurized process cheese manufactured according to 21 CFR 133 are exempt from the date marking requirement. Some shelf stable meats (dry, fermented sausages and salt-cured products such as prosciutto and parma ham that are not labeled "Keep Refrigerated") are exempt from the date marking requirement.

7.3.5.3.3 Refrigerated, ready-to-eat, potentially hazardous food shall be discarded if not consumed within 7 calendar days from the date of preparation or opening. **16 C**

7.3.5.3.4 A refrigerated, potentially hazardous, ready-to-eat food ingredient or a portion of a refrigerated, potentially hazardous, ready-to-eat food that is subsequently combined with additional ingredients or portions of food shall retain the date marking of the earliest or first-prepared ingredient. **16 C**

7.3.5.3.5 If time only, rather than time in conjunction with temperature, is used as the public health control for a working supply of potentially hazardous food before cooking, or for ready-to-eat potentially hazardous food that is displayed or held for service for immediate consumption: **16 C**

(1) The food shall be marked or otherwise identified to indicate the time that is 4 hours past the point in time when the food is removed from temperature control;

(2) The food shall be cooked and served, served if ready-to-eat, or discarded, within 4 hours from the time when the food is removed from temperature control; and

(3) The food in unmarked containers or packages or marked to exceed a 4 hour limit shall be discarded.

7.3.5.3.6 Written procedures that ensure compliance with these guidelines shall be maintained on the vessel and made available to the VSP, upon request. **16 C**

7.3.5.3.7 Refrigerated, ready-to-eat, potentially hazardous food may be held at 7°C (45°F) up to 24 hours in existing short term holding refrigeration equipment provided: **16 C**

(1) The equipment is designated by a permanent label affixed to it indicating the maximum allowable product temperature is 7°C (45°F) and the maximum allowable storage time is 24 hours;

(2) All containers of potentially hazardous foods placed in the unit must be labeled with a date and time by which food shall be used or discarded;

(3) Potentially hazardous foods when placed in the equipment shall be at 5°C (41°F) or less; and

(4) When the equipment is upgraded or replaced, it shall be with equipment that can maintain the potentially hazardous food at 5°C (41°F) or less.

7.3.6 Consumer Information

7.3.6.1 Advisory

7.3.6.1.1 If an animal food such as beef, eggs, fish, lamb, milk, pork, poultry, or shellfish that is raw, undercooked, or not otherwise processed to eliminate pathogens is offered in a ready-to-eat form or as a raw ingredient in another ready-to-eat food, the passengers shall be informed by vessel newsletter articles, brochures, embarkation television broadcasts, menu advisories, placards, or other written means of the significantly increased risk to certain especially vulnerable consumers eating such foods in raw or undercooked form. Raw shell egg preparations are prohibited in uncooked products as described in 7.3.3.2.4. **16 C**

7.3.7 Contaminated Food

7.3.7.1 Discarding Food

- 7.3.7.1.1 A food that is unsafe or adulterated shall be discarded. 18 C
- 7.3.7.1.2 Food that is not from an approved source shall be discarded. 18 C
- 7.3.7.1.3 Ready-to-eat food that may have been contaminated by an employee who has been restricted or excluded for food employee health issues shall be discarded. 18 C
- 7.3.7.1.4 Food that is contaminated by food employees, consumers, or other persons through contact with their hands; bodily discharges, such as nasal or oral discharges; or other means shall be discarded. 18 C

7.4 Equipment and Utensils

7.4.1 Materials

7.4.1.1 Multiuse Characteristics and Use Limitations

- 7.4.1.1.1 Materials that are used in the construction of multiuse utensils and food-contact surfaces of equipment may not allow the migration of deleterious substances or impart colors, odors, or tastes to food and under normal use conditions shall be safe. 26 C
- 7.4.1.1.2 Materials that are used in the construction of multiuse utensils and food-contact surfaces of equipment shall be: 20
- (1) Durable, corrosion-resistant, and nonabsorbent;
 - (2) Sufficient in weight and thickness to withstand repeated warewashing;
 - (3) Finished to have a smooth, easily cleanable surface; and
 - (4) Resistant to pitting, chipping, crazing, scratching, scoring, distortion, and decomposition.
- 7.4.1.1.3 Cast iron may not be used for utensils or food-contact surfaces of equipment. *Cast iron may be used as a surface for cooking. Cast iron may be used in utensils for serving food if the utensils are used only as part of an uninterrupted process from cooking through service.* 20
- 7.4.1.1.4 Limitation of lead use shall be as follows: 20
- (1) Ceramic, china, crystal utensils, and decorative utensils such as hand painted ceramic or china that are used in contact with food shall be lead-free or contain

levels of lead not exceeding the limits for specific utensil categories as allowed by law.

(2) Pewter alloys containing lead in excess of 0.05% may not be used as a food-contact surface.

(3) Solder and flux containing lead in excess of 0.2% may not be used as a food-contact surface.

7.4.1.1.5

Copper and copper alloys such as brass:

26 C

(1) May not be used in contact with a food that has a pH below 6 such as vinegar, fruit juice, or wine or for a fitting or tubing installed between a backflow prevention device and a carbonator.

(2) *Copper and copper alloys may be used in contact with beer brewing ingredients that have a pH below 6 in the prefermentation and fermentation steps of a beer brewing operation such as a brewpub or microbrewery.*

7.4.1.1.6

Galvanized metal may not be used for utensils or food-contact surfaces of equipment that are used in contact with acidic food.

26 C

7.4.1.1.7

Wood use shall be limited as follows:

20

(1) Wood and wood wicker may not be used as a food-contact surface.

(2) *Hard maple or an equivalently hard, close-grained wood may be used for cutting boards; cutting blocks; bakers' tables; and utensils such as rolling pins, doughnut dowels, salad bowls, and chopsticks; and wooden paddles used in confectionery operations for pressure scraping kettles when manually preparing confections at a temperature of 110°C (230°F) or above.*

(3) *Whole, uncut, raw fruits and vegetables, and nuts in the shell may be kept in the wood shipping containers in which they were received, until the fruits, vegetables, or nuts are used.*

(4) *If the nature of the food requires removal of rinds, peels, husks, or shells before consumption, the whole, uncut, raw food may be kept in untreated wood containers; or treated wood containers if the containers are treated with a preservative that meets the requirements specified in 21 CFR 178.3800 Preservatives for Wood.*

7.4.1.1.8	Multiuse kitchenware such as frying pans, griddles, sauce pans, cookie sheets, and waffle bakers that have a perfluorocarbon resin coating shall be used with nonscoring or nonscratching utensils and cleaning aids.	20	
7.4.1.1.9	Nonfood-contact surfaces of equipment that are exposed to splash, spillage, or other food soiling or that require frequent cleaning shall be constructed of a corrosion-resistant, nonabsorbent, and smooth material.	21	
7.4.1.2	Single-Service and Single-Use Characteristics		
7.4.1.2.1	Materials that are used to make single-service and single-use articles shall not allow the migration of deleterious substances and shall be safe.	26	C
7.4.1.2.2	Materials that are used to make single-service and single-use articles shall not impart colors, odors, or tastes to food and shall be clean.	20	
7.4.2	Design and Construction		
7.4.2.1	Durability and Strength		
7.4.2.1.1	Food contact surfaces of equipment and utensils shall be designed and constructed to be durable and to retain their characteristic qualities under normal use conditions.	20	
7.4.2.1.2	Nonfood-contact surfaces of equipment and utensils shall be designed and constructed to be durable and to retain their characteristic qualities under normal use conditions.	21	
7.4.2.1.3	Food temperature measuring devices may not have sensors or stems constructed of glass, <i>except that thermometers with glass sensors or stems that are encased in a shatterproof coating such as candy thermometers may be used.</i>	26	C
7.4.2.2	Cleanability		
7.4.2.2.1	Multiuse food-contact surfaces shall be:	20	
	(1) Smooth;		
	(2) Free of breaks, open seams >1 mm (1/32 inch), cracks, chips, inclusions, pits, and similar imperfections;		
	(3) Free of sharp internal angles, corners, and crevices;		
	(4) Finished to have smooth welds and joints; and		
	(5) Accessible for cleaning and inspection by one of the following methods without being disassembled, by disassembling without the use of tools, or by easy disassembling with the use of handheld tools commonly		

	available to maintenance and cleaning personnel such as screwdrivers, pliers, open-end wrenches, and Allen wrenches. <i>This section does not apply to cooking oil storage tanks, distribution lines for cooking oils, or beverage syrup lines or tubes.</i>	
7.4.2.2.2	CIP equipment shall meet the following criteria:	20
	(1) It shall be designed and constructed so that cleaning and sanitizing solutions circulate throughout a fixed system and contact all interior food-contact surfaces, and the system is self-draining or capable of being completely drained of cleaning and sanitizing solutions; or	
	(2) CIP equipment that is not designed to be disassembled for cleaning shall be designed with inspection access points to ensure that all interior food-contact surfaces throughout the fixed system are being effectively cleaned.	
7.4.2.2.3	<i>Except for hot oil cooking or filtering equipment, "V" type threads may not be used on food-contact surfaces.</i>	20
7.4.2.2.4	Hot oil filtering equipment shall be readily accessible for filter replacement and cleaning of the filter.	20
7.4.2.2.5	Cutting or piercing parts of can openers shall be readily removable for cleaning and for replacement.	20
7.4.2.2.6	Nonfood-contact surfaces shall be free of unnecessary ledges, projections, and crevices, and designed and constructed to allow easy cleaning and to facilitate maintenance.	21
7.4.2.2.7	Kick plates shall be designed so that the areas behind them are accessible for inspection and cleaning by:	21
	(1) Being easily removable or capable of being rotated open; and	
	(2) Being removable or capable of being rotated open without unlocking equipment doors.	
7.4.2.2.8	Filters or other grease extracting equipment shall be designed to be readily removable for cleaning and replacement if not designed to be cleaned in place.	21
7.4.2.3	Accuracy	
7.4.2.3.1	Food temperature measuring devices:	20
	(1) That are scaled only in Celsius or dually scaled in Celsius and Fahrenheit shall be accurate to $\pm 1^{\circ}\text{C}$ in the intended range of use; and	
	(2) That are scaled only in Fahrenheit shall be accurate to $\pm 2^{\circ}\text{F}$ in the intended range of use.	

7.4.2.3.2	Ambient air temperature measuring devices:	20 <u>21</u>
	(1) That are scaled in Celsius or dually scaled in Celsius and Fahrenheit shall be designed to be easily readable and accurate to $\pm 1.5^{\circ}\text{C}$ in the intended range of use.	
	(2) That are scaled only in Fahrenheit shall be accurate to $\pm 3^{\circ}\text{F}$ in the intended range of use.	
7.4.2.4	Functionality	
7.4.2.4.1	Exhaust ventilation hood systems in food preparation and warewashing areas including components such as hoods, fans, guards, and ducting shall be designed to prevent grease or condensation from draining or dripping onto food, equipment, utensils, linens, and single-service and single-use articles.	37
7.4.2.4.2	Equipment openings, closures and deflectors shall conform to:	20
	(1) A cover or lid for equipment shall overlap the opening and be sloped to drain.	
	(2) An opening located within the top of a unit of equipment that is designed for use with a cover or lid shall be flanged upward at least 5 millimeters (2/10 of an inch).	
	(3) Fixed piping, temperature measuring devices, rotary shafts, and other parts extending into equipment shall be provided with a watertight joint at the point where the item enters the equipment.	
	(4) If a watertight joint is not provided, the piping, temperature measuring devices, rotary shafts, and other parts extending through the openings shall be equipped with an apron designed to deflect condensation, drips, and dust from openings into the food; and the opening shall be flanged at least 5 millimeters (2/10 of an inch).	
7.4.2.4.3	In equipment that dispenses liquid food or ice in unpackaged form:	20
	(1) The delivery tube, chute, orifice, and splash surfaces directly above the container receiving the food shall be designed in a manner, such as with barriers, baffles, or drip aprons, so that drips from condensation and splash are diverted from the opening of the container receiving the food;	
	(2) The delivery tube, chute, and orifice shall be protected from manual contact such as by being recessed;	

(3) The delivery tube or chute and orifice of equipment used to vend liquid food or ice in unpackaged form to self-service consumers shall be designed so that the delivery tube or chute and orifice are protected from dust, insects, rodents, and other contamination by a self-closing door if the equipment is located in an outside area that does not otherwise afford the protection of an enclosure against the rain, windblown debris, insects, rodents, and other contaminants that are present in the environment, or available for self-service during hours when it is not under the full-time supervision of a food employee; and

(4) The dispensing equipment actuating lever or mechanism and filling device of consumer self-service beverage dispensing equipment shall be designed to prevent contact with the lip-contact surface of glasses or cups that are refilled.

7.4.2.4.4	Equipment containing bearings and gears that require lubricants shall be designed and constructed so that the lubricant cannot leak, drip, or be forced into food or onto food-contact surfaces.	21
7.4.2.4.5	Beverage tubing and cold-plate beverage cooling devices may not be installed in contact with stored ice. <i>This guideline does not apply to cold plates that are constructed integrally without seams in an ice storage bin.</i>	20
7.4.2.4.6	Equipment compartments that are subject to accumulation of moisture because of conditions such as condensation, food or beverage drip, or water from melting ice shall be sloped to an outlet that allows complete draining.	21
7.4.2.4.7	Liquid waste drain lines may not pass through an ice machine or ice storage bin.	20
7.4.2.4.8	If a condenser unit is an integral component of equipment, the condenser unit shall be separated from the food and food storage space by a dustproof barrier.	21
7.4.2.4.9	Temperature measuring devices shall conform to the following guidelines:	20 <u>21</u>

(1) In a mechanically refrigerated or hot-food storage unit, the sensor of a temperature measuring device shall be located to measure the air temperature in the warmest part of a mechanically refrigerated unit and in the coolest part of a hot-food storage unit.

(2) Cold or hot holding equipment used for potentially hazardous food shall be designed to include and shall be equipped with at least one integral or affixed temperature measuring device that is located to allow easy viewing of the device's temperature display.

(3) *The above section does not apply to equipment for which the placement of a temperature measuring device is not a practical means for measuring the ambient air surrounding the food because of the design, type, and use of the equipment, such as calorod units, heat lamps, cold plates, bains-marie, steam tables, insulated food transport containers, and salad bars.*

(4) Temperature measuring devices shall be designed to be easily readable.

(5) Food temperature measuring devices shall have a numerical scale, printed record, or digital readout in increments no greater than 1°C (2°F) in the intended range of use.

7.4.2.5	Food Equipment, Standards and Classification	
7.4.2.5.1	Food-contact surfaces of food equipment shall comply with American National Standards Institute (ANSI) or other internationally accredited food-equipment sanitation standards for materials, design, and construction.	20
7.4.2.5.2	Nonfood-contact surfaces of food equipment shall comply with American National Standards Institute (ANSI) or other internationally accredited food-equipment sanitation standards for materials, design, and construction.	21
7.4.3	Numbers and Capacities	
7.4.3.1	Cooling, Heating, and Holding Capacities	
7.4.3.1.1	Equipment for cooling and heating food, and holding cold and hot food, shall be sufficient in number and capacity to maintain specified potentially hazardous food temperatures.	20
7.4.3.2	Ventilation Hood Systems	
7.4.3.2.1	Ventilation hood systems and devices shall be sufficient in number and capacity to prevent grease or condensation from collecting on bulkheads and deckheads.	37
7.4.3.3	Utensils, Consumer Self-Service	
7.4.3.3.1	A food-dispensing utensil shall be available for each container displayed at a consumer self-service unit such as a buffet or salad bar.	19
<u>7.4.3.3.2</u>	<u>Each self-service food dispensing utensil shall be covered or located beneath shielding during service.</u>	<u>19</u>

7.4.3.4	Food Temperature Measuring Devices	
7.4.3.4.1	Food temperature measuring devices shall be provided and readily accessible for use in ensuring attainment and maintenance of food temperatures.	20
7.4.4	Equipment Location and Installation	
7.4.4.1	Fixed Equipment, Spacing or Sealing	
7.4.4.1.1	Equipment that is fixed because it is not easily movable shall be installed so that it is:	21
	(1) Spaced to allow access for cleaning along the sides, behind, under and above the equipment;	
	(2) Spaced from adjoining equipment, bulkhead, and deckhead at a distance of not more than 1 millimeter or 1/32 inch; or	
	(3) Sealed to adjoining equipment or bulkhead, if the equipment is exposed to spillage or seepage.	
7.4.4.1.2	Table-mounted equipment that is not easily movable shall be installed to allow cleaning of the equipment and areas underneath and around the equipment by being:	21
	(1) Sealed to the table; or	
	(2) Elevated on legs.	
7.4.4.2	Fixed Equipment, Elevation or Sealing	
7.4.4.2.1	Deck-mounted equipment that is not easily movable shall be sealed to the deck or elevated on legs that provide at least a 15-centimeter (6-inch) clearance between the deck and the equipment.	21
7.4.4.2.2	<i>If no part of the deck under the deck-mounted equipment is more than 15 centimeters (6 inches) from the point of cleaning access, the clearance space may be only 10 centimeters (4 inches).</i>	
7.4.4.2.3	Table-mounted equipment that is not easily movable shall be elevated on legs that provide at least a 10-centimeter (4-inch) clearance between the table and the equipment.	21
7.4.4.2.4	<i>The clearance space between the table and table-mounted equipment may be:</i>	
	(1) <i>7.5 centimeters (3 inches) if the horizontal distance of the table top under the equipment is no more than 50 centimeters (20 inches) from the point of access for cleaning; or</i>	
	(2) <i>5 centimeters (2 inches) if the horizontal distance of</i>	

the table top under the equipment is no more than 7.5 centimeters (3 inches) from the point of access for cleaning.

7.4.5 Maintenance and Operation

7.4.5.1 Equipment

7.4.5.1.1 Food-contact equipment shall be maintained in good repair and proper adjustment including: 20

(1) Equipment shall be maintained in a state of repair and condition that meets the materials, design, construction, and operation specifications of these guidelines.

(2) Cutting or piercing parts of can openers shall be kept sharp to minimize the creation of metal fragments that can contaminate food when the container is opened.

7.4.5.1.2 Nonfood-contact equipment shall be maintained in good repair and proper adjustment including: 21

(1) Equipment shall be maintained in a state of repair and condition that meets the materials, design, construction, and operation specifications of these guidelines.

(2) Equipment components such as doors, seals, hinges, fasteners, and kick plates shall be kept intact, tight, and adjusted in accordance with manufacturer's specifications.

7.4.5.1.3 Surfaces such as cutting blocks and boards that are subject to scratching and scoring shall be resurfaced if they no longer can be effectively cleaned and sanitized, or discarded if they are not capable of being resurfaced. 20

7.4.5.1.4 Microwave ovens shall meet the safety standards specified in 21 CFR 1030.10 Microwave Ovens, or equivalent. 20

7.4.5.2 Good Repair and Calibration

7.4.5.2.1 Utensils and temperature measuring devices shall be maintained in good repair and proper adjustment including: 20

(1) Utensils shall be maintained in a state of repair or condition that meets the materials, design and construction specifications of these guidelines or shall be discarded.

(2) Food temperature measuring devices shall be calibrated in accordance with manufacturer's specifications as necessary to ensure their accuracy.

7.4.5.2.2 Ambient air temperature measuring devices shall be 21

maintained in good repair and be accurate within the intended range of use.

7.4.5.3 Single-Service and Single-Use Articles

- 7.4.5.3.1 Single-service and single-use articles may not be reused. 28
- 7.4.5.3.2 The bulk milk container dispensing tube shall be cut on the diagonal leaving no more than 3 centimeters (1 inch) protruding from the chilled dispensing head. 20
- 7.4.5.3.3 Mollusk and crustacea shells may not be used more than once as serving containers. 28

7.5 Warewashing

7.5.1 [Reserved]

7.5.2 Warewashing Design and Construction

7.5.2.1 Warewashing Measuring Device Accuracy

- 7.5.2.1.1 Water temperature measuring devices: 22

(1) That are scaled in Celsius or dually scaled in Celsius and Fahrenheit shall be designed to be accurate to $\pm 1.5^{\circ}\text{C}$ in the intended range of use.

(2) That are scaled only in Fahrenheit shall be designed to be accurate to $\pm 3^{\circ}\text{F}$ in the intended range of use.

- 7.5.2.1.2 Pressure measuring devices that display the pressures in the water supply line for the fresh hot water sanitizing rinse shall have increments of 7 kilopascals (1 pounds per square inch) or smaller and shall be accurate to ± 14 kilopascals (± 2 pounds per square inch) in the 100-170 kilopascals (15-25 pounds per square inch) range. 22

7.5.2.2 Warewashing Functionality

- 7.5.2.2.1 Water temperature measuring devices shall be designed to be easily readable. 22
- 7.5.2.2.2 Water temperature measuring devices on warewashing machines shall have a numerical scale, printed record, or digital readout in increments no greater than 1°C (2°F) in the intended range of use. 22
- 7.5.2.2.3 A warewashing machine shall be provided with an easily accessible and readable data plate affixed to the machine by the manufacturer that indicates the machine's design and operating specifications including the: 22

(1) Temperatures required for washing, rinsing, and sanitizing;

	(2) Pressure required for the fresh water sanitizing rinse <i>unless the machine is designed to use only a pumped sanitizing rinse</i> ; and	
	(3) Conveyor speed for conveyor machines or cycle time for stationary rack machines.	
7.5.2.2.4	Warewashing machine wash and rinse tanks shall be equipped with baffles, curtains, or other means to minimize internal cross-contamination of the solutions in wash and rinse tanks.	22
7.5.2.2.5	A warewashing machine shall be equipped with a temperature measuring device that indicates the temperature of the water:	22
	(1) In each wash and rinse tank; and	
	(2) As the water enters the hot water sanitizing final rinse manifold or in the chemical sanitizing solution tank.	
7.5.2.2.6	A warewashing machine that uses a chemical for sanitization and that is installed after adoption of these guidelines, shall be equipped with a device that indicates audibly or visually when more chemical sanitizer needs to be added.	22
7.5.2.2.7	Warewashing machines that provide a fresh hot water sanitizing rinse:	22
	(1) Shall be equipped with a pressure gauge or similar device such as a transducer that measures and displays the water pressure in the supply line immediately before entering the warewashing machine; and	
	(2) If the flow pressure measuring device is upstream of the fresh hot water sanitizing rinse control valve, the device shall be mounted in a 6.4 mm (1/4 inch) Iron Pipe Size (IPS) valve.	
	(3) <i>These guidelines do not apply to a machine that uses only a pumped or recirculated sanitizing rinse.</i>	
7.5.2.2.8	If hot water is used for sanitization in manual warewashing operations, the sanitizing compartment of the sink shall be:	22
	(1) Designed with an integral heating device that is capable of maintaining water at a temperature not less than 77°C (171°F); and	
	(2) Provided with a rack or basket to allow complete immersion of equipment and utensils into the hot water.	

7.5.2.2.9 Sinks and drainboards of warewashing sinks and machines shall be self-draining. 22

7.5.3 Warewashing Numbers and Capacities

7.5.3.1 Three-Compartment Sinks

7.5.3.1.1 A sink with at least 3 compartments shall be provided for manually washing, rinsing, and sanitizing equipment and utensils. 22

7.5.3.1.2 Sink compartments shall be large enough to accommodate immersion of the largest equipment and utensils. If equipment or utensils are too large for the warewashing sink, a warewashing machine or alternative equipment, such as a 3-bucket system, shall be used. 22

7.5.3.1.3 *Alternative manual warewashing equipment may be used when there are special cleaning needs or constraints and its use is approved. Alternative manual warewashing equipment may include:*

(1) *High-pressure detergent sprayers;*

(2) *Low- or line-pressure spray detergent foamers;*

(3) *Other task-specific cleaning equipment;*

(4) *Brushes or other implements;*

(5) *Receptacles such as a 3-bucket system that substitute for the compartments of a 3-compartment sink.*

7.5.3.2 Drainboards

7.5.3.2.1 Drainboards, utensil racks, or tables large enough to accommodate all soiled and cleaned items that may accumulate during hours of operation shall be provided for necessary utensil holding before cleaning and after sanitizing. 22

7.5.3.3 Sanitizing Solutions, Testing Devices

7.5.3.3.1 A test kit or other device that accurately measures the concentration in mg/L (ppm) of sanitizing solutions shall be provided. 22

7.5.4 Warewashing Equipment Maintenance and Operation

7.5.4.1 Good Repair and Proper Adjustment

7.5.4.1.1 Warewashing equipment shall be maintained in good repair and proper adjustment including: 22

(1) Warewashing equipment shall be maintained in a state of repair and condition that meets the standards of the materials, design, and construction of these guidelines.

(2) Water pressure, and water temperature measuring devices shall be maintained in good repair and be accurate within the intended range of use.

7.5.4.1.2 A warewashing machine; the compartments of sinks, basins, or other receptacles used for washing and rinsing equipment, utensils, or raw foods, or laundering wiping cloths; and drainboards shall be cleaned: 22

(1) Before use;

(2) Throughout the day at a frequency necessary to prevent recontamination of equipment and utensils and to ensure that the equipment performs its intended function; and

(3) If used, at least every 24 hours.

7.5.4.1.3 A warewashing machine and its auxiliary components: 22

(1) Shall be operated in accordance with the machine's data plate and other manufacturer's instructions.

(2) A warewashing machine's conveyor speed or automatic cycle times shall be maintained accurately timed in accordance with manufacturer's specifications.

7.5.4.1.4 When used for warewashing, the wash compartment of a sink, mechanical warewasher, or wash receptacle of alternative manual warewashing equipment shall contain a wash solution of soap, detergent, acid cleaner, alkaline cleaner, degreaser, abrasive cleaner, or other cleaning agent according to the cleaning agent manufacturer's label instructions. 22

7.5.4.1.5 The wash, rinse, and sanitize solutions shall be maintained clean. 22

7.5.4.2 Wash Temperatures

7.5.4.2.1 The temperature of the wash solution in manual warewashing equipment shall be maintained at not less than the temperature specified on the cleaning agent manufacturer's label instructions. 23

7.5.4.2.2 The temperature of the wash solution in spray type warewashers that use hot water to sanitize may not be less than: 23

(1) For a stationary-rack, single-temperature machine, 74°C (165°F);

(2) For a stationary-rack, dual-temperature machine, 66°C (150°F);

(3) For a single-tank, conveyor, dual-temperature machine, 71°C (160°F); or

(4) For a multitank, conveyor, multitemperature machine, 66°C (150°F).

7.5.4.2.3 The temperature of the wash solution in spray-type warewashers that use chemicals to sanitize may not be less than 49°C (120°F). 23

7.5.5 Cleaning Equipment and Utensils

7.5.5.1 Cleaning Frequency

7.5.5.1.1 Food-contact surfaces of equipment and utensils shall be clean to sight and touch. **26 C**

7.5.5.1.2 The food-contact surfaces of cooking equipment and pans shall be kept free of encrusted grease deposits and other soil accumulations. **26 C**

7.5.5.1.3 Nonfood-contact surfaces of equipment shall be kept free of an accumulation of dust, dirt, food residue, and other debris. 27

7.5.5.1.4 Equipment food-contact surfaces and utensils shall be cleaned: 26 C

(1) Before each use with a different type of raw animal food such as beef, fish, lamb, pork, or poultry;

(2) Each time there is a change from working with raw foods to working with ready-to-eat foods;

(3) Between uses with raw fruits and vegetables and with potentially hazardous food;

(4) Before using or storing a food temperature measuring device; and

(5) At any time during the operation when contamination might have occurred.

7.5.5.1.5 If used with potentially hazardous food, equipment food-contact surfaces and utensils used on a continuing basis shall be cleaned throughout the day at least every 4 hours. 28

7.5.5.1.6 Cleaning of equipment such as ice bins and beverage dispensing nozzles and enclosed components of equipment such as ice makers, cooking oil storage tanks, and distribution lines, beverage, and syrup dispensing lines or tubes, and coffee bean grinders shall be conducted: 28

(1) At a frequency specified by the manufacturer, or

(2) Absent manufacturer specifications, at a frequency necessary to preclude accumulation of soil or mold.

7.5.5.1.7 Cooking and baking equipment shall be cleaned as follows: 28

(1) The food-contact surfaces of cooking and baking equipment shall be cleaned at least every 24 hours.

(2) The cavities and door seals of microwave ovens shall be cleaned at least every 24 hours by using the manufacturer's recommended cleaning procedure.

7.5.5.2 Dry Cleaning Methods

7.5.5.2.1 Dry cleaning shall be accomplished as follows: 28

(1) If used, dry cleaning methods such as brushing, scraping, and vacuuming shall contact only surfaces that are soiled with dry food residues that are not potentially hazardous.

(2) Cleaning equipment used in dry cleaning food-contact surfaces may not be used for any other purpose.

7.5.5.3 Precleaning and Racking

7.5.5.3.1 Food debris on equipment and utensils, shall be scrapped over a waste disposal unit, pulper, or garbage receptacle or shall be removed in a warewashing machine with a prewash cycle. 23

7.5.5.3.2 If necessary for effective cleaning, utensils, and equipment shall be preflushed, presoaked, or scrubbed with abrasives. 23

7.5.5.3.3 Soiled items to be cleaned in a warewashing machine shall be loaded into racks, trays, or baskets or onto conveyors in a position that: 22

(1) Exposes the items to the unobstructed spray from all cycles; and

(2) Allows the items to drain.

7.5.5.4 Wet Cleaning

7.5.5.4.1 Equipment food-contact surfaces and utensils shall be effectively washed to remove or completely loosen soils by using the manual or mechanical means necessary such as the application of detergents containing wetting agents and emulsifiers; acid, alkaline, or abrasive cleaners; hot water; brushes; scouring pads; high-pressure sprays; or ultrasonic devices. 23

7.5.5.4.2 The washing procedures selected shall be based on the type and purpose of the equipment or utensil, and on the type of soil to be removed. 22

7.5.5.5 Alternative Manual Warewashing Procedures

7.5.5.5.1 If washing in sink compartments or a warewashing machine is impractical such as when the equipment is fixed or the utensils are too large, washing shall be done by using alternative manual warewashing equipment in accordance with the following procedures: 23

(1) Equipment shall be disassembled as necessary to allow access of the detergent solution to all parts;

(2) Equipment components and utensils shall be scrapped or rough-cleaned to remove food particle accumulation; and

7.5.5.5.2 (3) Equipment and utensils shall be washed. Sponges may not be used in contact with cleaned and sanitized or in-use food-contact surfaces. 22

7.5.5.6 Rinsing Procedures

7.5.5.6.1 Washed utensils and equipment shall be rinsed so that abrasives are removed and cleaning chemicals are removed or diluted through the use of water by using one of the following procedures: 23

(1) Use of a distinct, separate water rinse after washing and before sanitizing if using a 3-compartment sink, alternative manual warewashing equipment equivalent to a 3-compartment sink, or a 3-step washing, rinsing, and sanitizing procedure in a warewashing system for CIP equipment;

(2) If using a warewashing machine that does not recycle the sanitizing solution, or alternative manual warewashing equipment such as sprayers, use of a nondistinct water rinse that is integrated in the application of the sanitizing solution, and wasted immediately after each application; or

(3) If using a warewashing machine that recycles the sanitizing solution for use in the next wash cycle, use of a nondistinct water rinse that is integrated in the application of the sanitizing solution.

7.5.6 Sanitizing

7.5.6.1 Sanitizing Temperatures

7.5.6.1.1 In a manual operation, if immersion in hot water is used for sanitizing: 24 C

(1) The temperature of the water shall be maintained at 77°C (171°F) or above; and

(2) The food-contact surface shall be immersed for at least 30 seconds.

7.5.6.1.2 In a mechanical operation, the temperature of the fresh hot water sanitizing rinse as it enters the manifold may not be more than 90°C (194°F), or less than: 24 C

(1) For a stationary rack, single temperature machine, 74°C (165°F); or

(2) For all other machines, 82°C (180°F).

(3) A utensil surface temperature of 71°C (160°F) as measured by an irreversible registering temperature indicator shall be achieved.

(4) The maximum temperature of 90°C (194°F), does not apply to the high pressure and temperature systems with wand-type, hand-held, spraying devices used for the in-place cleaning and sanitizing of equipment such as meat saws.

7.5.6.1.3 The flow pressure of the fresh hot water sanitizing rinse in a warewashing machine may not be less than 100 kilopascals (15 pounds per square inch) or more than 170 kilopascals (25 pounds per square inch) as measured in the water line immediately downstream or upstream from the fresh hot water sanitizing rinse control valve. 22

7.5.6.2 Sanitizing Concentrations

7.5.6.2.1 A chemical sanitizer used in a sanitizing solution for a manual or mechanical operation shall be listed in 21 CFR 178.1010 Sanitizing Solutions. 24 C

7.5.6.2.2 A chemical sanitizer shall be used in accordance with the EPA-approved manufacturer's label use instructions at a minimum temperature of 24°C (75°F) with an exposure time of 7 seconds for a chlorine solution and 30 seconds for other chemical sanitizers. 24 C

7.5.6.2.3 The sanitizing solutions shall be used with the following concentrations: 24 C

(1) A chlorine solution shall have a concentration between 50 mg/L (ppm) and 200 mg/L (ppm);

(2) An iodine solution shall have a pH of 5.0 or less or a pH no higher than the level for which the manufacturer specifies the solution is effective, and a concentration between 12.5 mg/L (ppm) and 25 mg/L (ppm); or

(3) A quaternary ammonium compound solution shall have a concentration as specified in 21 CFR 178.1010 Sanitizing Solutions and as indicated by the manufacturer's use directions included in the labeling.

(4) If another solution concentration or temperature of a chlorine, iodine, or quaternary ammonium compound is used, the vessel shall demonstrate to VSP that the solution achieves sanitization and the use of the solution shall be approved; or

(5) If a chemical sanitizer other than a chlorine, iodine, or quaternary ammonium compound is used, it shall be applied in accordance with the manufacturer's use directions included in the labeling.

7.5.6.2.4 Concentration of the sanitizing solution shall be accurately determined by using a test kit or other device. 22

7.5.7 Protection of Clean Items

7.5.7.1 Drying

7.5.7.1.1 After cleaning and sanitizing, equipment and utensils shall be air-dried or adequately drained before contact with food. Cleaned, sanitized, and air-dried dishware, glassware, and utensils may be polished with a clean, dry, lint-free cloth that is maintained clean and dry. 28

7.5.7.2 Lubricating and Reassembling

7.5.7.2.1 Lubricants shall be applied to food-contact surfaces that require lubrication in a manner that does not contaminate food-contact surfaces. 28

7.5.7.2.2 Equipment shall be reassembled so that food-contact surfaces are not contaminated. 28

7.5.7.3 Storing Equipment, Utensils, Linens, and Single-Service and Single-Use Articles

7.5.7.3.1 Cleaned equipment and utensils, laundered linens, and single-service and single-use articles shall be stored: 28

(1) In a clean, dry location;

(2) Where they are not exposed to splash, dust, or other contamination; and

(3) At least 15 centimeters (6 inches) above the deck.

7.5.7.3.2 Clean equipment and utensils shall be stored: 28

(1) In a self-draining position that allows air drying; and

(2) Covered or inverted.

7.5.7.3.3 Single-service and single-use articles shall be kept in the original protective package or stored by using other means that afford protection from contamination until used. 28

7.5.7.3.4 Eating utensils dispensed at a consumer self-service unit such as a buffet or salad bar shall be protected from contamination. 28

7.5.8 Laundering

7.5.8.1 Laundry Facilities

- 7.5.8.1.1 If linens used in the food areas are laundered on the vessel, a mechanical clothes washer and dryer shall be provided and used. 28
- 7.5.8.1.2 *If laundering is limited to wiping cloths intended to be used moist, or to wiping cloths that are air-dried, a mechanical clothes washer and dryer need not be provided.*
- 7.5.8.1.3 Laundry operations shall be located so that the operations are protected from contamination and only where there is no exposed food; clean equipment, utensils, and linens; and unwrapped single-service and single-use articles. 28

7.5.8.2 Laundry Procedures

- 7.5.8.2.1 Linens that do not come in direct contact with food shall be laundered between operations if they become wet, sticky, or visibly soiled. 28
- 7.5.8.2.2 Cloth gloves shall be laundered before being used with a different type of raw animal food such as beef, lamb, pork, and fish. 28
- 7.5.8.2.3 Linens and napkins that are used to line food service containers and cloth napkins shall be laundered between each use. 28
- 7.5.8.2.4 Wet wiping cloths shall be laundered daily. 28
- 7.5.8.2.5 Dry wiping cloths shall be laundered as necessary to prevent contamination of food and clean serving utensils. 28
- 7.5.8.2.6 Soiled linens shall be kept in clean, nonabsorbent, receptacles or clean, washable laundry bags and stored and transported to prevent contamination of food, clean equipment, clean utensils, and single-service and single-use articles. 28
- 7.5.8.2.7 Linens shall be mechanically washed. 28

7.6	Poisonous and Toxic Materials		
7.6.1	Identification		
7.6.1.1	Labeling		
7.6.1.1.1	Original containers of poisonous or toxic materials and personal-care items shall bear a legible manufacturer's label.	31	C
7.6.1.1.2	Working containers used for storing poisonous or toxic materials such as cleaners and sanitizers taken from bulk supplies shall be clearly and individually identified with the common name of the material.	31	C
7.6.2	Operational Supplies and Applications		
7.6.2.1	Storage		
7.6.2.1.1	Pesticides, insecticides, and rodenticides shall be stored in a locked area of the vessel that is not in a food area.	31	C
7.6.2.1.2	Poisonous or toxic materials used in food area cleaning and maintenance shall be stored so they cannot contaminate food, equipment, utensils, linens, and single-service and single-use articles by separating the poisonous or toxic materials by storing in a cleaning materials locker.	31	C
7.6.2.1.3	<i>This guideline does not apply to equipment and utensil cleaners and sanitizers that are stored in warewashing areas for availability and convenience if the materials are stored to prevent contamination of food, equipment, utensils, linens, and single-service and single-use articles.</i>		
7.6.2.2	Use		
7.6.2.2.1	Only poisonous or toxic materials that are required for the operation and maintenance of a food areas of the vessel, such as for the cleaning and sanitizing of equipment and utensils and the control of insects and rodents, shall be allowed in the food areas of the vessel.	31	C
7.6.2.2.2	Poisonous or toxic materials shall be used according to:	31	C
	(1) Law and these guidelines;		
	(2) Manufacturer's use directions included in labeling, and, for a pesticide, manufacturer's label instructions that state that use is allowed in a food area; and		
	(3) The conditions of certification, if certification is required, for use of the pest-control materials.		
7.6.2.2.3	Poisonous or toxic materials shall be applied so that:	31	C

(1) A hazard to employees or other persons is not constituted, and

(2) Contamination including toxic residues resulting from drip, drain, fog, splash or spray on food, equipment, utensils, linens, and single-service and single-use articles is prevented.

7.6.2.2.4 For a restricted-use pesticide, food, equipment, utensils, linens, and single-service and single-use articles shall be removed; covered with impermeable covers; and other precautions. **31 C**

7.6.2.2.5 A restricted-use pesticide shall be applied only by an applicator certified as defined in 7 USC 136(e) Certified Applicator, of the Federal Insecticide, Fungicide and Rodenticide Act or a person under the direct supervision of a certified applicator. **31 C**

7.6.2.2.6 Food equipment and utensils in the area treated shall be cleaned and sanitized following the application. **31 C**

7.6.2.2.7 A container previously used to store poisonous or toxic materials may not be used to store, transport, or dispense food. **31 C**

7.6.2.3 Sanitizers and Other Food Area Chemicals

7.6.2.3.1 Chemical sanitizers and other chemical antimicrobials applied to food-contact surfaces shall meet the requirements specified in 21 CFR 178.1010 Sanitizing Solutions. **31 C**

7.6.2.3.2 Chemicals used to wash or peel raw, whole fruits and vegetables shall meet the requirements specified in 21 CFR 173.315 Chemicals Used in Washing or to Assist in the Lye Peeling of Fruits and Vegetables. **31 C**

7.6.2.3.3 Chemicals used as boiler water additives for culinary steam or other food area purposes shall meet the requirements specified in 21 CFR 173.310 - Boiler Water Additives. **31 C**

7.6.2.3.4 Drying agents used in conjunction with sanitization shall contain only components that are listed as one of the following: **31 C**

(1) Generally recognized as safe for use in food as specified in 21 CFR 182 - Substances Generally Recognized as Safe or 21 CFR 184 - Direct Food Substances Affirmed as Generally Recognized as Safe;

(2) Generally recognized as safe for the intended use as specified in 21 CFR 186 - Indirect Food Substances Affirmed as Generally Recognized as Safe;

(3) Approved for use as a drying agent under a prior sanction specified in 21 CFR 181 - Prior-Sanctioned Food Ingredients;

(4) Specifically regulated as an indirect food additive for use as a drying agent as specified in 21 CFR Parts 175-178; or

(5) Approved for use as a drying agent under the threshold of regulation process established by 21 CFR 170.39 Threshold of Regulation for Substances Used in Food-Contact Articles.

7.6.2.3.5 Drying agents, when used with chemical sanitization, shall be specifically approved for use with chemical sanitizing solutions. **31 C**

7.6.2.3.6 Lubricants shall meet the requirements specified in 21 CFR 178.3570 Lubricants with Incidental Food-Contact, if they are used on food-contact surfaces, on bearings and gears located on or within food-contact surfaces, or on bearings and gears that are located so that lubricants may leak, drip, or be forced into food or onto food-contact surfaces. **31 C**

7.6.2.4 Pesticides and Rodenticides

7.6.2.4.1 Restricted-use pesticides used in food areas shall meet the requirements specified in 40 CFR 152 Subpart I Classification of Pesticides. **31 C**

7.6.2.4.2 Rodent bait used in food areas shall be contained in a covered, tamper-resistant bait station. **31 C**

7.6.2.4.3 A tracking powder pesticide may not be used in a food area. **31 C**

7.6.2.4.4 A nontoxic tracking powder such as talcum or flour, if used, may not contaminate food. 19

7.6.2.4.5 A nontoxic tracking powder such as talcum or flour, if used, may not contaminate equipment, utensils, linens, and single-service and single-use articles. 28

7.6.3 Medicines

7.6.3.1 Restriction and Storage

7.6.3.1.1 Only medicines necessary for the health of the food employees shall be allowed in a food area. **31 C**

7.6.3.1.2 Medicines that are in a food area for the food employees' use shall be labeled and be located in an area such as the chef's office to prevent the contamination of food, equipment, utensils, linens, and single-service and single-use articles. **31 C**

7.6.3.1.3 First aid supplies that are in a food area for the food employees' use shall be labeled and stored in a kit or a container that is located to prevent the contamination of food, equipment, utensils, linens, and single-service and single-use articles. **31 C**

7.7 Facilities

7.7.1 Handwashing and Toilet Facilities

7.7.1.1 Handwashing Facility Installation

7.7.1.1.1 Each food preparation area, bar, warewashing area, and garbage-processing area shall have at least one handwashing facility located in it. **29 C**

7.7.1.1.2 The handwashing facility shall be located within 8 m (25 feet) of all parts of the area and should not be located in an adjacent area that requires passage through a closed door, where the user makes hand-contact with the door. **29 C**

7.7.1.1.3 A handwashing sink shall be equipped to provide water at a temperature of at least 43°C (110°F) through a mixing valve or combination faucet. For handwash sinks with electronic sensors, where the user cannot make temperature adjustments, the temperature provided to the user after the mixing valve shall not exceed 52°C (125°F). **29 C**

7.7.1.1.4 A self-closing, slow-closing, or metering faucet shall provide a flow of water for at least 15 seconds without the need to reactivate the faucet. 30

7.7.1.1.5 An automatic handwashing facility shall be installed in accordance with manufacturer's instructions. 30

7.7.1.1.6 A handwashing facility shall include a sink, soap dispenser, single-use towels dispenser, and waste receptacle. 30

7.7.1.1.7 A sign stating "WASH HANDS OFTEN" in a language that the food employees understand shall be posted over handwashing sinks. 30

7.7.1.2 Toilet Facility Installation

7.7.1.2.1 Toilet rooms shall be provided and conveniently located. **29 C**

7.7.1.2.2 Handwashing facilities shall be provided in or immediately adjacent to toilet rooms or vestibules. **29 C**

7.7.1.2.3 Signs shall be conspicuously posted on the bulkhead adjacent to the door of the toilet, reading "WASH HANDS AFTER USING TOILET " in a language that the food employees understand. 30

7.7.1.2.4 Toilet rooms shall be completely enclosed and shall have tight-fitting, self-closing doors which shall be kept closed except during cleaning or maintenance. 30

7.7.1.2.5	Easily cleanable covered receptacles shall be provided for hygiene waste materials.	30	
7.7.1.3	Handwashing and Toilet Facility Maintenance		
7.7.1.3.1	Handwashing facilities shall be used for no other purpose and shall be accessible at all times.	29	C
7.7.1.3.2	Handwashing facilities shall be kept clean and in good repair.	30	
7.7.1.3.3	Each handwashing facility shall have a supply of hand-cleansing soap or detergent and a supply of single-service paper towels available.	30	
7.7.1.3.4	Toilet fixtures shall be kept clean and in good repair.	30	
7.7.1.3.5	A supply of toilet tissue shall be provided at each toilet at all times.	30	
7.7.2	Solid Waste		
7.7.2.1	Receptacles and Containers		
7.7.2.1.1	Receptacles and waste-handling containers for refuse and recyclables and for use with materials containing food residue shall be durable, nonabsorbent, easily cleanable and leakproof.	32	
7.7.2.1.2	Receptacles and waste-handling containers for refuse, recyclables and for use with materials containing food residue shall be insect and rodent resistant and shall have tight-fitting lids.	32	
7.7.2.1.3	Receptacles and waste-handling containers shall be kept covered when not in continuous use and after they are filled.	32	
7.7.2.1.4	A receptacle or waste-handling container shall be provided in each area of the vessel or premise where refuse is generated or commonly discarded or where recyclables are placed.	32	
7.7.2.1.5	Facilities suitable for washing receptacles and waste-handling containers shall be provided separate from food equipment and utensil storage areas or food preparation areas.	32	
7.7.2.1.6	The designated container wash area shall be easily cleanable and shall have tempered water, access to detergent, and suitable drainage.	32	
7.7.2.1.7	Receptacles and waste-handling containers shall be cleaned when emptied.	32	
7.7.2.2	Garbage and Refuse Storage Room		
7.7.2.2.1	The dry and refrigerated garbage and refuse storage room shall be constructed of easily cleanable, corrosion-resistant, nonabsorbent, and durable materials.	32	

7.7.2.2.2	The garbage and refuse storage room shall be large enough to store and process the garbage and refuse.	32	
7.7.2.2.3	The garbage and refuse storage room shall be located so as to prevent contamination in food preparation, storage, and utensil washing areas.	32	
7.7.2.2.4	The garbage and refuse storage room shall be maintained in good repair and kept clean.	32	
7.7.3	Liquid Waste Disposal and Plumbing		
7.7.3.1	Drain Lines		
7.7.3.1.1	Drain lines from all fixtures, sinks, 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 or air-break.	07 <u>19</u>	E
7.7.3.1.2	<i>Drain lines from handwashing <u>and mop</u> sinks may be directly connected to the appropriate waste system.</i>		
7.7.3.1.3	Drain lines carrying sewage or other liquid waste shall not pass directly overhead or horizontally through spaces used for the preparation, serving, or storage of food or the washing or storage of utensils and equipment. Drain lines that are unavoidable in these food areas shall be sleeve-welded and shall not have mechanical couplings.	19	
<u>7.7.3.1.4</u>	<u>All drain lines from warewashing sinks or machines shall drain through an air-gap or air-break to a drain or scupper.</u>	<u>28</u>	
7.7.3.2	Liquid Waste Disposal		
7.7.3.2.1	Black and gray water shall be discharged to the vessel's wastewater disposal system and shall not pool on the deck.	35	
7.7.3.2.2	The leakage of sewage tanks or discharge of sewage into the bilge or other areas on the vessel shall be prohibited.	35	
7.7.3.3	Plumbing		
7.7.3.3.1	A plumbing system in a food area shall be maintained in good repair.	34	
7.7.4	Decks, Bulkheads, and Deckheads		
7.7.4.1	Design and Construction		
7.7.4.1.1	Decks, bulkheads, and deckheads in food preparation, warewashing, pantries, and storage areas shall be constructed and maintained for easy cleaning.	33	
7.7.4.1.2	<i>Decks may be of non-skid construction provided they are easily cleanable.</i>		

7.7.4.1.3	Bulkhead and deck junctures shall be covered (<u>including galleys, pantries, deck/counter junctures at buffets, bars, waiter stations, and dining room work counters</u>).	33
7.7.4.1.4	Bulkheads and deckheads shall have smooth, hard finishes, and light colored surfaces.	33
7.7.4.1.5	Decks, bulkheads, and deckheads in food preparation, warewashing, pantries, and storage areas shall be corrosion-resistant.	33
7.7.4.1.6	Light fixtures, vent covers, and similar equipment attached to the bulkheads or deckheads shall be easily cleanable.	33
7.7.4.1.7	Exposed utility service lines and pipes, including lines for fire detection and protection systems, shall be installed so they do not obstruct or prevent cleaning.	33
7.7.4.1.8	Surfaces subject to routine splashes, spillage or other soiling during normal use shall have easily cleanable features.	33
7.7.4.1.9	Mats shall be designed to be removable and easily cleanable.	33
7.7.4.2	Maintenance	
7.7.4.2.1	Decks, bulkheads, deckheads, and attached equipment in food preparation, warewashing, pantries, and storage areas, shall be cleaned as often as necessary.	33
7.7.4.2.2	Cleaning shall be done during periods when the least amount of food is exposed.	33
7.7.4.2.3	Decks, bulkheads, and deckheads in food preparation, warewashing, pantries, and storage areas, shall be maintained in good repair.	33
7.7.5	Lighting	
7.7.5.1	Intensity	
7.7.5.1.1	The light intensity shall be at least 220 Lux (20 foot candles) on food preparation surfaces, and at a distance of 75 centimeters (30 inches) above the deck in food preparation areas, handwashing facilities, warewashing areas, equipment, and utensil storage, pantries, toilet rooms, and consumer self-service areas.	36
7.7.5.1.2	The light intensity shall be at least 110 Lux (10 foot candles) at a distance of 75 centimeters (30 inches) above the deck when in use, in walk-in refrigerator units and dry storage areas, and in other areas and rooms during periods of cleaning.	36
<u>7.7.5.1.3</u>	<u>In bars and dining room waiter stations provide 220 lux (20 foot candles) light intensity during cleaning operations.</u>	<u>36</u>

7.7.5.2	Protected	
7.7.5.2.1	Light bulbs shall be shielded, coated, or otherwise shatter-resistant in areas where there is exposed food; clean equipment, utensils, and linens; or unwrapped single-service, and single-use articles.	36
7.7.5.2.2	An infrared or other heat lamp shall be protected against breakage by a shield surrounding and extending beyond the bulb so that only the face of the bulb is exposed.	36
7.7.6	Ventilation	
7.7.6.1	Design and Operation	
7.7.6.1.1	All food preparation, warewashing, and toilet rooms shall have sufficient ventilation to keep them free of excessive heat, steam, condensation, vapors, obnoxious odors, smoke, and fumes.	37
7.7.6.1.2	Ventilation hood systems and devices shall operate effectively to prevent grease and condensate from collecting on the bulkheads and deckheads and remove contaminants generated by equipment located under them.	37
7.7.6.1.3	Heating, ventilating, and air conditioning systems shall be designed and installed so that make-up air intake and exhaust vents do not cause contamination of food, food-contact surfaces, equipment, or utensils.	37
7.7.6.2	Maintenance	
7.7.6.2.1	Filters and other grease extracting equipment shall be designed to be readily removable for cleaning and replacement if not designed to be cleaned-in-place. Intake and exhaust air ducts shall be cleaned and filters changed so they are not a source of contamination by dust, dirt, and other materials.	37
7.7.7	Cleaning Equipment and Unnecessary Articles	
7.7.7.1	Storage	
7.7.7.1.1	Only articles necessary for the food service operation shall be stored in food preparation, food storage, and warewashing areas.	38
7.7.7.1.2	Maintenance tools such as mops, brooms, and similar items shall be stored in a designated locker so they do not contaminate food; food-contact surfaces of utensils; and equipment; linens, and single-service and single-use articles.	38

- 7.7.7.1.3 Maintenance tools such as mops, brooms, and similar items shall be stored in an orderly manner that facilitates cleaning of the area used for storing the maintenance tools. 38
- 7.7.7.1.4 After use, mops shall be placed in a position that allows them to air-dry without soiling walls, equipment, or supplies. 38
- 7.7.7.1.5 *Wash, rinse, and sanitize buckets or other containers may be stored with maintenance tools provided they are stored inverted and nested.*

8.0 Integrated Pest Management

- 8.1 Integrated Pest Management**
- 8.2 Pest Control**

8.1 Integrated Pest Management

8.1.1 Plan Development and Implementation

8.1.1.1 IPM Plans

8.1.1.1.1 Each vessel shall develop an Integrated Pest Management Plan to address effective monitoring and control strategies for pests aboard the vessel. 40

8.1.1.1.2 The Integrated Pest Management Plan shall set a schedule for periodic monitoring inspections including some at night. 40

8.1.1.1.3 The Integrated Pest Management Plan shall include provisions for active monitoring including pest sighting logs for the operational areas of the vessel and training for crew members in charge of log completion. 40

8.1.1.1.4 The Integrated Pest Management Plan shall include passive surveillance procedures such as glue traps and other monitoring tools, as well as location of each. A monitoring log on passive surveillance procedures shall be maintained. 40

8.1.1.2 Plan Evaluation

8.1.1.2.1 The vessel's Integrated Pest Management Plan shall be evaluated for effectiveness every 2 years or whenever there is a significant change in the vessel's structure such as a renovation or operation. 40

8.1.1.2.2 Reviews shall be documented and changes noted in the vessel's Integrated Pest Management Plan. 40

8.1.1.2.3 The vessel's Integrated Pest Management Plan documentation shall be made available during the VSP inspections. 40

8.1.2 IPM and Pesticide Use

8.1.2.1 Pesticide Application

8.1.2.1.1 The Integrated Pest Management Plan shall include a record of pesticides used and their effectiveness. The record shall include only pesticides currently onboard the vessel and those used in the previous 12 months. 40

8.1.2.1.2 A restricted-use pesticide shall be applied only by a certified applicator or a person with training and testing equivalent to that of a certified applicator. 39 C

8.1.2.1.3 The training of the pest-control personnel shall be documented in the Integrated Pest Management Plan. 40

8.1.2.1.4 The Integrated Pest Management Plan shall establish health and safety procedures to protect the passengers and crew. 40

8.2 Pest Control

8.2.1 Exclusion

8.2.1.1 Food Areas

8.2.1.1.1 The presence of insects, rodents, and other pests shall be effectively controlled to minimize their presence in the food storage, preparation, and service areas and warewashing and utensil storage areas aboard a vessel. 39 C

8.2.1.1.2 Entry points where pests may enter the food areas shall be protected. 40

8.2.1.1.3 Incoming shipments of food and supplies shall be routinely inspected for evidence of insects, rodents, and other pests. A record of these inspections shall be maintained onboard the vessel and shall be available for review during inspections. 40

8.2.1.1.4 The vessel's food areas shall be inspected under the Integrated Pest Management Plan at a frequency that can quickly detect the evidence of pests or the creation of harborage conditions. 40

8.2.2 Control Measures

8.2.2.1 Chemical

8.2.2.2.1 Chemical control measures shall conform to products and application procedures specifically allowed in the food safety section of these guidelines and the vessel's Integrated Pest Management Plan. **39 C**

8.2.2.2 Physical

8.2.2.2.1 Insect-control devices that are used to electrocute or stun flying insects shall be designed to retain the insect within the device. 40

8.2.2.2.2 The insect devices shall not be located over food storage, preparation, and service areas. Dead insects and insect fragments shall be prevented from being impelled onto or falling on exposed food. 19

8.2.2.2.3 The insect devices shall not be located over warewashing, utensil storage areas, equipment, utensils, linens, unwrapped single-service, and single-use articles. Dead insects and insect fragments shall be prevented from being impelled onto or falling on clean items. 28

8.2.2.2.4 Dead or trapped insects, rodents, and other pests shall be removed from control devices and the vessel at a frequency that prevents their accumulation or decomposition, or the attraction of pests. 40

9.0 Housekeeping

- 9.1 Infection-Control Procedures
- 9.2 Air Systems
- 9.3 Fountains, Humidifiers, and Showers

9.1 Infection-Control Procedures

9.1.1 Disinfection

9.1.1.1 Public Areas

9.1.1.1.1 When the cumulative proportion of cases of gastrointestinal illness among passengers or crew members is $\geq 2\%$, the infection control response shall include cleaning and disinfecting all public areas, including handrails and restrooms, on a continuous basis until the proportion decreases to $< 2\%$. 41

9.1.1.1.2 Each vessel shall have a written Outbreak Prevention and Response Plan (OPRP) which details the standard procedures and policies to specifically address gastrointestinal illness onboard. The written OPRP shall include at a minimum, the following: 41

- (a) Duties and responsibilities of each department and their staff
- (b) Steps in outbreak management and control and the trigger for each step
- (c) Establish documentation requirements for all outbreak related data

A full description of details to include in an OPRP is provided in the VSP website at <http://www.cdc.gov/nceh/vsp/>.

9.1.1.1.3 Public toilet facilities shall be equipped so that persons exiting the toilet room are not required to handle the door with bare hands. This may be accomplished by methods such as locating paper towel dispensers at sinks and waste containers near the room door, installing mechanically operated doors, door removal, or other effective means. 41

9.1.2.1 Cabins

9.1.2.1.1 Cabins that house passengers or crew with gastrointestinal illness shall be thoroughly cleaned and disinfected daily while the occupants are ill. 41

9.1.2.1.2 Extra precautionary measures by housekeeping personnel shall be taken in consultation with the vessel's medical staff to prevent the spread of gastrointestinal illness from cabin to cabin. 41

9.1.2.1.3 *Precautionary measures by the housekeeping personnel may include using disposable personal protection equipment, including gloves, which are changed after each cabin.*

9.2 Air Systems

9.2.1 Design and Maintenance

9.2.1.1 Construction

9.2.1.1.1 Air handling unit condensate drain pans and collection systems shall be accessible for inspection, maintenance, and cleaning. Installation of sight windows or other effective methods for full inspection and cleaning of condensate collection pans shall be utilized when original equipment access makes evaluation during operational inspections impractical. 41

9.2.1.1.2 Air condition condensation collection pans shall be self-draining. 41

9.2.1.2 Maintenance

9.2.1.2.1 Air handling units shall be kept clean. 41

9.2.1.2.2 Evaporative condensers shall be inspected at least annually and cleaned as necessary to remove scale and sediment. Cooling coils and condensate pans shall be cleaned as necessary to remove dirt and organic material. 41

9.2.1.2.3 Vessels shall have a plan to inspect and maintain heating, ventilation, and air conditioning systems in accordance with manufactures recommendations and industry standards. The written inspection, cleaning, and maintenance plan for the heating, ventilation, and air-conditioning system shall be maintained on the vessel and available for review during inspections. 41

9.2.1.3 Dust Control

9.2.1.3.1 Carpets, curtains, drapes, furniture, decks, lighting fixtures, and decorative items on the vessel shall be cleaned to minimize accumulation of dust and soil. 41

9.2.1.3.2 Dustless cleaning methods shall be used. 41

9.3 Fountains, Humidifiers, and Showers

9.3.1 Fountains and Humidifiers

9.3.1.1 Water Source

9.3.1.1.1 Water used in conjunction with decorative fountains and water sprays in HVAC air- distribution systems shall originate in the vessel's potable water system and shall be further treated to avoid microbial build-up in the operation of the sprays and fountains. 41

9.3.1.2 Fountain and Water Spray Maintenance

9.3.1.2.1 Decorative fountains and water sprays in HVAC air- distribution systems shall be maintained free of algae and mold. 41

9.3.2 Hot-Water System and Showers

9.3.2.1 Maintenance

9.3.2.1.1 The potable hot-water system including shower heads shall be maintained to preclude growth of *Mycobacterium or legionella*. 41

9.3.2.1.2 Shower heads shall be cleaned and disinfected every 6 months to preclude growth of *Mycobacterium or legionella*. 41

10.0 Child-Activity Centers

- 10.1 Diaper Changing
- 10.2 Toilet and Handwashing
- 10.3 Cleaning and Disinfection
- 10.4 Exclusions

10.1 Diaper Changing

10.1.1 Diaper-Changing Facilities

10.1.1.1 Design

10.1.1.1.1 If children who wear diapers are accepted in the child-activity center, diaper-changing stations and disposal facilities shall be provided. 41

10.1.1.1.2 Each station shall include: 41

(1) A changing table that is impervious, nonabsorbent, nontoxic, smooth, durable, and cleanable, and designed for diaper changing;

(2) A supply of disposable diapers, gloves, wipes, table cleanser, and disinfectant;

(3) An airtight, soiled-diaper receptacle; and

(4) An adjacent handwashing station.

10.1.1.1.3 Signs shall be posted in the diaper-changing area advising ~~child-activity center staff to wash their hands after each diaper they change.~~ handwashing after each diaper change. 41

10.2 Toilets and Handwashing

10.2.1 Facilities

10.2.1.1 Design

10.2.1.1.1 Child-size toilet and handwashing facilities shall be provided, if toilet rooms are located in a child-activity center. 41

10.2.1.1.2 Each toilet facility shall be provided with a supply of toilet tissue, disposable gloves, and sanitary wipes. 41

10.2.1.1.3 An airtight, washable, waste receptacle shall be conveniently located to dispose of excrement, soiled sanitary wipes that cannot be disposed of in the toilet and gloves. Waste materials shall be removed from the child-activity center each day. 41

10.2.1.1.4 Soap, paper towels or air dryers, and waste towel receptacle shall be located at handwashing stations. 41

10.2.1.1.5 Signs shall be posted in children's toilet room advising the providers to wash their hands and the children's hands after assisting children use the toilet. 41

- 10.2.1.1.6 Children under 6-years old shall be assisted in washing their hands in the child-activity center after using the toilet room, before eating, or after otherwise contaminating their hands. 41
- 10.2.1.1.7 Separate toilet facilities shall be provided for child activity center staff. 41

10.3 Cleaning and Disinfection

10.3.1 Furnishings and Toys

10.3.1.1 Construction

- 10.3.1.1.1 Surfaces of tables, chairs, and other furnishings that children touch with their hands shall be cleanable. 41
- 10.3.1.1.2 Toys used in the child-activity center shall be maintained in a clean condition. 41

10.3.1.2 Procedures

- 10.3.1.2.1 Surfaces that children touch with their hands shall be cleaned and disinfected at least daily with products labeled by the manufacturer for that purpose. 41
- 10.3.1.2.2 Toys used in the child-activity center shall be cleaned and disinfected daily. Balls used in ball pits/pens shall be cleaned at least once per week, unless otherwise contaminated. 41
- 10.3.1.2.3 Tables or high chair trays shall be cleaned and disinfected before and after they are used for eating. 41
- 10.3.1.2.4 Carpeting shall be vacuumed at least daily and shall be periodically cleaned when it becomes visibly soiled. Decks shall be mopped and disinfected when soiled or at least daily. 41
- 10.3.1.2.5 Diaper changing and handwashing facilities and toilet rooms shall be cleaned and disinfected when soiled during use and at least daily. 41

10.3.1.3 Linens

- 10.3.1.3.1 Linens such as blankets, sheets, and pillow cases shall be laundered between each use. 41

10.4 Exclusions

10.4.1 Children with Infectious Illness

10.4.1.1 Procedures

- 10.4.1.1.1 Written guidance on symptoms of common childhood infectious illnesses shall be maintained in the child-activity center. 41
- 10.4.1.1.2 The child-activity center shall have a written policy on procedures to be followed when a child develops symptoms of an infectious illness while at the center. 41
- 10.4.1.1.3 Children with infectious illness shall not be allowed in the child-activity center without permission of the vessel's medical staff. 41

11.0 Administrative Guidelines

- 11.1 Inspections**
- 11.2 Inspection Report**
- 11.3 Risk-Based Scoring and Correction Priority**
- 11.4 Closing Conference**
- 11.5 Inspection Review**
- 11.6 Corrective-Action Statement**
- 11.7 Correction Affidavit**
- 11.8 Inspection Publication**
- 11.9 Recommendation that the Vessel Not Sail**
- 11.10 Reinspections and Follow-Up Inspections**
- 11.11 Construction / Renovation Inspections**
- 11.12 Other Environmental Investigations**
- 11.13 Variances**

11.1 Inspections

11.1.1 Inspection Procedures

- 11.1.1.1 An unannounced, complete sanitation inspection by VSP Environmental Health Officers (EHOs) shall be done twice each federal fiscal year, if the vessel is available.
- 11.1.1.2 VSP EHOs shall be trained in the interpretation and application of the USPHS / CDC / VSP Operations Manual.
- 11.1.1.3 The VSP EHO shall board the vessel and immediately inform the master of the vessel or a designated agent that a vessel sanitation inspection is to be conducted.
- 11.1.1.4 The VSP EHO shall then conduct the inspection in a logical sequence until the EHO has completed the inspection of all areas identified in this manual.
- 11.1.1.5 The VSP EHO shall contact the master of the vessel or a designated agent and the Chief, VSP, immediately during an inspection about a possible recommendation that the vessel not sail, if an imminent health hazard as specified in section 11.9.2 is found to exist on the vessel and if these deficiencies possibly cannot be corrected before the inspection is completed.
- 11.1.1.6 The inspection shall be completed in the same visit once it has begun. In the event that the inspection cannot be completed, the results of an incomplete inspection shall be discussed with the vessel's staff. A complete inspection shall be conducted at a later date.

11.2 Inspection Report

11.2.1 Draft Report

- 11.2.1.1 The VSP EHO shall provide a draft inspection report to the master of the vessel, or a designated agent, at the conclusion of the inspection.

- 11.2.1.2 The draft inspection report shall provide administrative information, gastrointestinal illness log review details, and inspection score.
- 11.2.1.3 The draft inspection report shall provide a written description of the items found deficient and where the deficiency was observed.

11.2.2 Final Report

- 11.2.2.1 The VSP EHO shall use the Vessel Sanitation Inspection Report (Annex 13.8) to summarize the inspection score. The inspection report shall contain the following elements:
 - 11.2.2.2 Administrative information that identifies the vessel and its master or designee and the numerical rating when the credit point values for all observed deficiencies are subtracted from 100.
 - 11.2.2.3 The item number and the credit point value for that item number shall be indicated if the vessel does not meet the Operations Manual standard for that item.
 - 11.2.2.4 The medical documentation (e.g.; GI logs, medical logs, special reports, etc.) shall be available for review by VSP for accuracy and timeliness of reporting.
 - 11.2.2.5 A written description of the items found deficient shall be included. The deficiencies shall be itemized with references to the section of the Operations Manual. The description shall include the deficiency location and Operations Manual section citation.

11.3 Risk-Based Scoring and Correction Priority

11.3.1 Scoring System

- 11.3.1.1 The inspection report scoring system is based on inspection items with a total value of 100 points.
- 11.3.1.2 Inspection items are weighted according to their probability of increasing the risk for a gastrointestinal disease outbreak.
- 11.3.1.3 Critical items are those with a weight of 3 to 5 credit point values on the inspection report.
- 11.3.1.4 Critical items are designated in this Operations Manual with a red **C** to the right of the inspection report item number which is also shown in red. The section numbers of the critical items in this Operations Manual are also provided in red.
- 11.3.1.5 Noncritical items are those with a weight of 1 to 2 credit point values on the inspection report.
- 11.3.1.6 Each weighted deficiency found on an inspection shall be deducted from 100 possible credit points.

11.3.2 Risk-Based Correction Priority

- 11.3.2.1 A vessel shall at the time of inspection correct a critical deficiency of this Operations Manual and implement a corrective- action plan for monitoring the critical item for continued compliance.

11.3.2.2 *Considering the nature of the potential hazard involved and the complexity of the corrective action needed, the VSP may agree to, or specify, a longer time frame, not to exceed 10 calendar days after the inspection, for the vessel to correct critical deficiencies.*

11.4 Closing Conference

11.4.1 Procedures

11.4.1.1 The results of the inspection shall be explained to the master or a designee before the VSP EHO leaves the vessel.

11.4.1.2 A copy of the draft inspection report shall be left with the master or designee. The report shall be reviewed in detail and opportunity provided for discussions of the findings. The draft report is provided so that the vessel personnel can begin correcting deficiencies immediately.

11.4.1.3 The master or a designee shall be provided with a payment invoice for a signature. The VSP EHO shall provide one copy of the signed invoice to the master or designee and shall forward one copy to the vessel's company office along with the final inspection report.

11.4.1.4 The fee for inspections shall be based on the existing fee schedule for routine inspections of passenger cruise vessels, published annually in the Federal Register.

11.5 Inspection Review

11.5.1 Inspection Report Review Requests

11.5.1.1 If the master disagrees with the findings, the master shall notify the VSP EHO during the closing conference of the intent to request a review of the specific items being contested, and the substantive reasons for disagreement.

If a designated corporate official disagrees with the findings, the corporate official may submit a request to review the inspection. This request must be submitted to VSP within 48 hours of the closing conference.

11.5.1.2 An interim report shall be completed at the request of the owner or operator if an inspection is under review, indicating the item(s) under review. The VSP shall modify the final inspection report, as necessary, after the review by the Chief, VSP.

11.5.1.3 After receiving a request for review, the VSP EHO shall mark the vessel's inspection report as under review at the request of the vessel owner or operator.

11.5.1.4 The vessel owner or operator shall make a written request for review within 2 weeks of the inspection with specific reference and facts concerning the contested deficiencies that the VSP EHO documented during the inspection.

11.5.1.5 The written request shall be sent to:

Chief, Vessel Sanitation Program Branch
National Center for Environmental Health
Centers for Disease Control and Prevention
4770 Buford Hwy NE, Mailstop F 23
Atlanta, GA 30341-3724
USA

11.5.2 Inspection Report Review Procedures

11.5.2.1 The Chief, VSP, shall review the matter and respond within 2 weeks of receiving the request for a review. In the response, the Chief, VSP, shall state whether the inspection report is to be changed.

11.5.2.2 No numerical score shall be published before the Chief, VSP, makes a final determination on the review. Publication of inspection results shall indicate the vessel's status as under review at the request of the vessel owner or operator.

11.5.2.3 Copies of the contested inspection results that are released before the Chief, VSP, makes a final determination on the review shall have each contested deficiency clearly marked as under review at the request of the vessel owner or operator.

11.5.2.4 The interim report shall be issued as a final report if the written request for review is not received within 2 weeks of the inspection.

11.5.2.5 If the ship owner does not agree with the review and decision of the Chief VSP, they may appeal the decision to the Director, Division of Emergency and Environmental Health Services, National Center for Environmental Health.

11.5.3 Other Recommendations Review

11.5.3.1 A vessel owner or operator shall have the right to request a review of recommendations made during a technical consultation, or an inspection, if the owner or operator believes that VSP officials have imposed requirements inconsistent with or beyond the scope of this manual.

11.5.3.2 The owner or operator shall send a written statement explaining the problem in detail to the Chief, VSP, within 30 days of the date the recommendation was made.

11.5.3.3 The Chief, VSP, shall review the issue and respond within 2 weeks of receiving the statement, advising whether the recommendation shall be revised.

11.5.3.4 If the ship owner does not agree with the review and decision of the Chief VSP, they may appeal the decision to the Director, Division of Emergency and Environmental Health Services, National Center for Environmental Health.

11.6 Corrective-Action Statement

11.6.1 Procedures

- 11.6.1.1 A signed corrective-action statement (Annex 13.9) shall be submitted to the Chief, VSP, by the master, owner or operator which details each deficiency identified during the inspection, and the corrective action taken.
- 11.6.1.2 Critical-item deficiencies shall also include standard operating procedures and monitoring procedures implemented to prevent the recurrence of the critical deficiency.
- 11.6.1.3 The corrective-action statement may contain requests for clarification of items noted on the inspection report. The request for clarification shall be included in the cover letter from the vessel's master, owner, or operator. Clarification of these items will be provided back to the requestor, in writing, by the Chief, VSP, or the EHO who conducted the inspection in question.
- 11.6.1.4 The corrective-action statement shall be appended to the final inspection report for future reference and, if requested, made available for public distribution.
- 11.6.1.5 A corrective-action statement shall not affect the inspection score.

11.7 Correction Affidavit

11.7.1 Procedures

- 11.7.1.1 An affidavit of correction from the owner or operator, certifying that corrective action has been completed, may be submitted to the Chief, VSP. The procedure may be used only one time for an item. The item shall be structure- or equipment-related, and it shall be corrected within a reasonable period.
- 11.7.1.2 At least one of the following conditions shall apply for an item to qualify for an affidavit of correction:
 - (1) It shall be a longstanding deficiency that has not been identified during previous inspections; or
 - (2) It shall be a deficiency in which the function of the equipment is being accomplished by an alternative method.
- 11.7.1.3 After the inspection, but before the VSP EHO leaves the vessel, the vessel's master or a representative shall provide notification of the intent to submit an affidavit of correction. This notice shall specify the deficiency(s) to be corrected and the corrective action to be taken. The draft inspection report will include a notation of the items to be corrected.
- 11.7.1.4 Upon acceptance of the affidavit, the final inspection score will be recalculated to include credit for the items corrected.

11.8 Inspection Publication

11.8.1 Methods

- 11.8.1.1 CDC shall publish an announcement of inspections performed in the *Summary of Sanitation Inspections of International Cruise Ships* on the VSP website <http://www.cdc.gov/nceh/vsp>.
- 11.8.1.2 The announcement shall include, at a minimum, the names of the vessels in the inspection program, the dates of their most recent inspections, and the numerical score achieved by each vessel.
- 11.8.1.3 Reports, including the corrective-action statement, shall be available to the public upon request.

11.9 Recommendation that the Vessel Not Sail

11.9.1 Imminent Health Hazards

- 11.9.1.1 An imminent health hazard shall be determined to be, but not limited to, one of the following situations:
 - (1) Free halogen residual in the potable water distribution system is less than 0.2 mg/L (ppm) and this deficiency is not corrected before the inspection ends;
 - (2) Inadequate facilities for maintaining safe temperatures for potentially hazardous food;
 - (3) Inadequate facilities for cleaning and sanitizing equipment;
 - (4) Continuous problems with liquid and solid waste disposal, such as inoperative or overflowing toilets or shower stalls in passenger and crew member cabins; or
 - (5) Infectious disease outbreak among passengers or crew, and where it is suspected that continuing normal operations may subject newly arriving passengers to disease.

11.9.2 Procedures

- 11.9.2.1 The VSP EHO shall immediately notify the Chief, VSP, when any of these imminent health hazards or similar imminent threats to public health are found aboard a vessel.
- 11.9.2.2 CDC shall recommend or direct the master of a vessel not to sail when an imminent health hazard is identified and cannot be immediately corrected. Such a recommendation shall be signed by the Chief, VSP, with concurrence of the Director, National Center for Environmental Health, or the Director's designee.

11.10 Reinspections and Follow-Up Inspections

11.10.1 Reinspection Procedures

11.10.1.1 A reinspection is a complete sanitation inspection performed on vessels that, on the previous inspection, did not score at least 86.

11.10.1.2 Vessels that fail on a routine inspection shall be reinspected within a reasonable time, depending on:

(1) Vessel schedules; and

(2) Receipt of the corrective-action statement from the vessel's management.

11.10.1.3 Reinspections shall be unannounced.

11.10.1.4 If such a no sail recommendation is made, a follow-up inspection shall be conducted as soon as requested.

11.10.1.5 In scheduling inspections, VSP shall give priority to the reinspection of those vessels that failed the routine inspection.

11.10.1.6 Vessels that fail a routine inspection shall undergo only one reinspection.

11.10.1.7 *Exceptions may be made, when the owner or operator submits a written request for an additional reinspection to the Chief, VSP stating the reasons why the additional reinspection is warranted.*

11.10.1.8 These additional reinspections shall be unannounced and the vessel shall be charged the standard inspection fee.

11.10.2 Follow-Up Inspection Procedures

11.10.2.1 A follow-up inspection is a partial inspection to review the status of deficiencies identified during the previous periodic inspection or reinspection.

11.10.2.2 A follow-up inspection cannot be a substitute for a periodic or reinspection.

11.10.2.3 Follow-up inspections may be conducted to resolve a contested inspection; or inspect imminent health hazards that resulted in a recommendation to prohibit the vessel from sailing.

11.10.2.4 These inspections shall be conducted as soon as possible after the routine inspection or reinspection, preferably the next time the vessel arrives at a U.S. port.

11.10.2.5 They shall be limited to inspection of deficiencies in question. For example, if an item under the refrigerator section of the inspection was found to be a deficiency and was the only item contested, only refrigeration would be checked during the follow-up inspection.

11.10.2.6 Any other problems noted during the follow-up inspection shall be brought to the attention of the vessel's master or designee so that the deficiencies can be corrected.

11.10.2.7 There shall be no inspection score provided nor fee charged for these follow-up inspections.

11.11 Construction / Renovation Inspections

11.11.1 Procedures

- 11.11.1.1 Whenever possible, the VSP staff shall conduct inspections of vessels being constructed or undergoing major retrofits upon the request of the vessel owner or operator.
- 11.11.1.2 An official written request shall be submitted to the Chief, VSP, requesting a voluntary construction / renovation inspection. CDC's ability to honor these requests shall be based on the availability of VSP staff.
- 11.11.1.3 Construction / renovation inspections shall normally be conducted at the shipyard 4 to 6 weeks before completion. An additional inspection may also be conducted upon completion of the work and before the vessel enters operational status.
- 11.11.1.4 Construction / renovation inspections shall document the vessel's compliance with CDC's *Recommended Shipbuilding Construction Guidelines for Passenger Vessels Destined to Call on U.S. Ports*, which provides a framework for consistency in the sanitary design, construction, and construction inspections of cruise vessels.
- 11.11.1.5 The CDC *Recommended Shipbuilding Construction Guidelines for Passenger Vessels Destined to Call on U.S. Ports* shall apply to all new vessels in which the keel is laid after February 1, 1997.
- 11.11.1.6 The construction guidelines shall also apply to major retrofits planned after February 1, 1997.
- 11.11.1.7 These guidelines shall not apply to minor retrofits.
- 11.11.1.8 The fee for these construction / renovation inspections shall be based on the existing fee schedule for routine inspections.

11.11.2 Construction / Renovation Inspection Reports

- 11.11.2.1 A written report shall be issued by the VSP after a construction / renovation inspection. These reports shall summarize any changes recommended to ensure conformity with CDC guidelines.
- 11.11.2.2 The reports prepared by VSP personnel in the shipyards during construction shall be used as guides if VSP conducts a final construction / renovation inspection on the vessel before the vessel enters operational service.
- 11.11.2.3 No score shall be given for construction / renovation inspections.

11.12 Other Environmental Investigations

11.12.1 Procedures

- 11.12.1.1 The VSP may conduct or coordinate other activities such as: investigating disease outbreaks; checking a specific condition such as halogen residual in the potable water distribution system; or investigating complaints of unsanitary conditions on a vessel.
- 11.12.1.2 Public health problems noted during other environmental investigations shall be brought to the attention of the vessel's master or designee when these investigations are performed.
- 11.12.1.3 There shall be no inspection score provided nor fee charged for other environmental investigations.

11.13 Variances

11.13.1 Procedures

- 11.13.1.1 The VSP may grant a variance by modifying or waiving the requirements of this Operations Manual if in the opinion of the VSP a health hazard or nuisance will not result from the variance.
- 11.13.1.2 If a variance is granted, the VSP shall retain the information in its records for the vessel or, if applicable, multiple vessels.
- 11.13.1.3 If a variance is granted, the vessel using the variance shall retain the information in its records for ready reference.

11.13.2 Documentation

- 11.13.2.1 Before a variance from a requirement of this Operations Manual is approved, the information that shall be provided to the VSP by the person requesting the variance and retained in the VSP's file on the vessel or vessels shall include:
 - (1) A statement of the proposed variance of the Operations Manual requirement citing relevant section numbers;
 - (2) An analysis of the rationale for how the potential public health hazards and nuisances addressed by the relevant Operations Manual requirement will be alternatively addressed by the proposal;
 - (3) If required, a HACCP plan, standard operating procedures, training plan and monitoring plan that includes all the information as it is relevant to the variance requested; and
 - (4) Additional scientific data or other information as required to support the determination that public health will not be compromised by the proposal.

11.13.3

Conformance

11.13.3.1

If the VSP grants a variance, the vessel shall:

(1) Comply with the HACCP plans, standard operating procedures, training plan, and monitoring plan that are submitted and approved as a basis for the modification or waiver; and

(2) Maintain and provide to the VSP, upon request, records that demonstrate that procedures monitoring critical-control points are effective, monitoring of the critical-control points are routinely employed, necessary corrective actions are taken if there is failure at a critical-control points and periodic verification of the effectiveness of the operation or process protects public health.

11.13.3.2

The variance approval may be rescinded at any time for noncompliance with these conditions or if it is determined that public health has the potential of being compromised.

13.0 Annexes

- 13.1 Authority**
- 13.2 Gastrointestinal Illness Surveillance System**
- 13.3 Gastrointestinal Illness Surveillance System Reporting**
- 13.4 Gastrointestinal Illness Outbreak Investigation**
- 13.5 Disinfection Calculations for Water and Equipment**
- 13.6 Food Cooking Alternatives**
- 13.7 Warewashing Evaluation**
- 13.8 Inspection Report**
- 13.9 Corrective-Action Statement**
- 13.10 Summary of Sanitation Inspections of International Cruise Ships**
- 13.11 Fecal Accident Plan**
- 13.12 Bibliography**

13.1 Authority

13.1.1 Public Health Service Act

13.1.2 Title 42 Code of Federal Regulations

13.1.1 Public Health Service Act

CHAPTER 6A--PUBLIC HEALTH SERVICE

SUBCHAPTER II--GENERAL POWERS AND DUTIES

Part G--Quarantine and Inspection

Sec. 264. Regulations to control communicable diseases

(a) Promulgation and enforcement by Surgeon General

The Surgeon General, with the approval of the Secretary, is authorized to make and enforce such regulations as in his judgment are necessary to prevent the introduction, transmission, or spread of communicable diseases from foreign countries into the States or possessions, or from one State or possession into any other State or possession. For purposes of carrying out and enforcing such regulations, the Surgeon General may provide for such inspection, fumigation, disinfection, sanitation, pest extermination, destruction of animals or articles found to be so infected or contaminated as to be sources of dangerous infection to human beings, and other measures, as in his judgment may be necessary.

(b) Apprehension, detention, or conditional release of individuals

Regulations prescribed under this section shall not provide for the apprehension, detention, or conditional release of individuals except for the purpose of preventing the introduction, transmission, or spread of such communicable diseases as may be specified from time to time in Executive orders of the President upon the recommendation of the National Advisory Health Council and the Surgeon General.

(c) Application of regulations to persons entering from foreign countries

Except as provided in subsection (d) of this section, regulations prescribed under this section, insofar as they provide for the apprehension, detention, examination, or conditional release of individuals, shall be applicable only to individuals coming into a State or possession from a foreign country or a possession.

(d) Apprehension and examination of persons reasonably believed to be infected

On recommendation of the National Advisory Health Council, regulations prescribed under this section may provide for the apprehension and examination of any individual reasonably believed to be infected with a communicable disease in a communicable stage and (1) to be moving or about to move from a State to another State; or (2) to be a probable source of infection to individuals who, while infected with such disease in a communicable stage, will be moving from a State to another State. Such regulations may provide that if upon examination any such individual is found to be infected, he may be detained for such time and in such manner as may be reasonably necessary. For purposes of this subsection, the term "State" includes, in addition to the several States, only the District of Columbia.

(July 1, 1944, ch. 373, title III, Sec. 361, 58 Stat. 703; 1953 Reorg. Plan No. 1, Secs. 5, 8, eff. Apr. 11, 1953, 18 F.R. 2053, 67 Stat. 631; July 12, 1960, Pub. L. 86-624, Sec. 29(c), 74 Stat. 419; June 23, 1976, Pub. L. 94-317, title III, Sec. 301(b)(1), 90 Stat. 707.)

Sec. 269. Bills of health

(a) Detail of medical officer; conditions precedent to issuance; consular officer to receive fees

Except as otherwise prescribed in regulations, any vessel at any foreign port or place clearing or departing for any port or place in a State or possession shall be required to obtain from the consular officer of the United States or from the Public Health Service officer, or other medical officer of the United States designated by the Surgeon General, at the port or place of departure, a bill of health in duplicate, in the form prescribed by the Surgeon General. The President, from time to time, shall specify the ports at which a medical officer shall be stationed for this purpose. Such bill of health shall set forth the sanitary history and condition of said vessel, and shall state that it has in all respects complied with the regulations prescribed pursuant to subsection (c) of this section. Before granting such duplicate bill of health, such consular or medical officer shall be satisfied that the matters and things therein stated are true. The consular officer shall be entitled to demand and receive the fees for bills of health and such fees shall be established by regulation.

(b) Collectors of customs to receive originals; duplicate copies as part of ship's papers

Original bills of health shall be delivered to the collectors of customs at the port of entry. Duplicate copies of such bills of health shall be delivered at the time of inspection to quarantine officers at such port. The bills of health herein prescribed shall be considered as part of the ship's papers, and when duly certified to by the proper consular or other officer of the United States, over his official signature and seal, shall be accepted as evidence of the statements therein contained in any court of the United States.

(c) Regulations to secure sanitary conditions of vessels

The Surgeon General shall from time to time prescribe regulations, applicable to vessels referred to in subsection (a) of this section for the purpose of preventing the introduction into the States or possessions of the United

States of any communicable disease by securing the best sanitary condition of such vessels, their cargoes, passengers, and crews. Such regulations shall be observed by such vessels prior to departure, during the course of the voyage, and also during inspection, disinfection, or other quarantine procedure upon arrival at any United States quarantine station.

(d) Vessels from ports near frontier

The provisions of subsections (a) and (b) of this section shall not apply to vessels plying between such foreign ports on or near the frontiers of the United States and ports of the United States as are designated by treaty.

(e) Compliance with regulations

It shall be unlawful for any vessel to enter any port in any State or possession of the United States to discharge its cargo, or land its passengers, except upon a certificate of the quarantine officer that regulations prescribed under subsection (c) of this section have in all respects been complied with by such officer, the vessel, and its master. The master of every such vessel shall deliver such certificate to the collector of customs at the port of entry, together with the original bill of health and other papers of the vessel. The certificate required by this subsection shall be procurable from the quarantine officer, upon arrival of the vessel at the quarantine station and satisfactory inspection thereof, at any time within which quarantine services are performed at such station.

(July 1, 1944, ch. 373, title III, Sec. 366, 58 Stat. 705.)

Sec. 271. Penalties for violation of quarantine laws

(a) Penalties for persons violating quarantine laws

Any person who violates any regulation prescribed under sections 264 to 266 of this title, or any provision of section 269 of this title or any regulation prescribed thereunder, or who enters or departs from the limits of any quarantine station, ground, or anchorage in disregard of quarantine rules and regulations or without permission of the quarantine officer in charge, shall be punished by a fine of not more than \$1,000 or by imprisonment for not more than one year, or both.

(b) Penalties for vessels violating quarantine laws

Any vessel which violates section 269 of this title, or any regulations thereunder or under section 267 of this title, or which enters within or departs from the limits of any quarantine station, ground, or anchorage in disregard of the quarantine rules and regulations or without permission of the officer in charge, shall forfeit to the United States not more than \$5,000, the amount to be determined by the court, which shall be a lien on such vessel, to be recovered by proceedings in the proper district court of the United States. In all such proceedings the United States attorney shall appear on behalf of the United States; and all such proceedings shall be conducted in accordance with the rules and laws governing cases of seizure of vessels for violation of the revenue laws of the United States.

(c) Remittance or mitigation of forfeitures

With the approval of the Secretary, the Surgeon General may, upon application therefor, remit or mitigate any forfeiture provided for under subsection (b) of this section, and he shall have authority to ascertain the facts upon all such applications.

(July 1, 1944, ch. 373, title III, Sec. 368, 58 Stat. 706; June 25, 1948, ch. 646, Sec. 1, 62 Stat. 909; 1953 Reorg. Plan No. 1, Secs. 5, 8, eff. Apr. 11, 1953, 18 F.R. 2053, 67 Stat. 631.)

13.1.2 Title 42 Code of Federal Regulations

**TITLE 42--PUBLIC HEALTH
CHAPTER I--PUBLIC HEALTH SERVICE,
DEPARTMENT OF HEALTH AND HUMAN SERVICES
PART 71--FOREIGN QUARANTINE**

**Subpart C--Notice of Communicable Disease Prior to
Arrival**

71.21 Radio report of death or illness.

(a) The master of a ship destined for a U.S. port shall report immediately to the quarantine station at or nearest the port at which the ship will arrive, the occurrence, on board, of any death or any ill person among passengers or crew (including those who have disembarked or have been removed) during the 15-day period preceding the date of expected arrival or during the period since departure from a U.S. port (whichever period of time is shorter).

(b) The commander of an aircraft destined for a U.S. airport shall report immediately to the quarantine station at or nearest the airport at which the aircraft will arrive, the occurrence, on board, of any death or ill person among passengers or crew.

(c) In addition to paragraph (a) of this section, the master of a ship carrying 13 or more passengers must report by radio 24 hours before arrival the number of cases (including zero) of diarrhea in passengers and crew recorded in the ship's medical log during the current cruise. All cases of diarrhea that occur after the 24 hour report must also be reported not less than 4 hours before arrival.

(Approved by the Office of Management and Budget under control number 0920-0134)

**Subpart D--Health Measures at U.S. Ports:
Communicable Diseases
Sec. 71.31 General provisions.**

(a) Upon arrival at a U.S. port, a carrier will not undergo inspection unless the Director determines that a failure to inspect will present a threat of introduction of communicable diseases into the United States, as may exist when the carrier has on board individual(s) reportable in accordance with Sec. 71.21 or meets the circumstances described in Sec. 71.42. Carriers not subject to inspection under this section will be subject to sanitary inspection under Sec. 71.41 of this part.

(b) The Director may require detention of a carrier until the completion of the measures outlined in this part that are necessary to prevent the introduction or spread of a communicable disease. The Director may issue a controlled free pratique to the carrier stipulating what measures are to be met, but such issuance does not prevent the periodic boarding of a carrier and the inspection of persons and records to verify that the conditions have been met for granting the pratique.

Sec. 71.32 Persons, carriers, and things.

(a) Whenever the Director has reason to believe that any arriving person is infected with or has been exposed to any of the communicable diseases listed in paragraph (b) of this section, he/she may detain, isolate, or place the person under surveillance and may order disinfection or disinfestation as he/she considers necessary to prevent the introduction, transmission, or spread of the listed communicable diseases.

(b) The communicable diseases authorizing the application of sanitary, detention, and/or isolation measures under paragraph (a) of this section are: cholera or suspected cholera, diphtheria, infectious tuberculosis, plague, suspected smallpox, yellow fever, or suspected viral hemorrhagic fevers (Lassa, Marburg, Ebola, Congo-Crimean, and others not yet isolated or named).

(c) Whenever the Director has reason to believe that any arriving carrier or article or thing on board the carrier is or

may be infected or contaminated with a communicable disease, he/she may require detention, disinsection, disinfection, disinfestation, fumigation, or other related measures respecting the carrier or article or thing as he/she considers necessary to prevent the introduction, transmission, or spread of communicable diseases.

Sec. 71.33 Persons: Isolation and surveillance.

(a) Persons held in isolation under this subpart may be held in facilities suitable for isolation and treatment.

(b) The Director may require isolation where surveillance is authorized in this subpart whenever the Director considers the risk of transmission of infection to be exceptionally serious.

(c) Every person who is placed under surveillance by authority of this subpart shall, during the period of surveillance:

(1) Give information relative to his/her health and his/her intended destination and report, in person or by telephone, to the local health officer having jurisdiction over the areas to be visited, and report for medical examinations as may be required;

(2) Upon arrival at any address other than that stated as the intended destination when placed under surveillance, or prior to departure from the United States, inform, in person or by telephone, the health officer serving the health jurisdiction from which he/she is departing.

(d) From time to time the Director may, in accordance with section 322 of the Public Health Service Act, enter into agreements with public or private medical or hospital facilities for providing care and treatment for persons detained under this part.

(Approved by the Office of Management and Budget under control number 0920-0134)

[50 FR 1519, Jan. 11, 1985; 50 FR 3910, Jan. 29, 1985]

Sec. 71.34 Carriers of U.S. military services.

(a) Carriers belonging to or operated by the military

services of the United States may be exempted from inspection if the Director is satisfied that they have complied with regulations of the military services which also meet the requirements of the regulations in this part. (For applicable regulations of the military services, see Army Regulation No. 40-12, Air Force Regulation No. 161-4, Secretary of the Navy Instruction 6210.2, and Coast Guard Commandant Instruction 6210.2).

(b) Notwithstanding exemption from inspection of carriers under this section, animals or articles on board shall be required to comply with the applicable requirements of subpart F of this part.

Sec. 71.35 Report of death or illness on carrier during stay in port.

The master of any carrier at a U.S. port shall report immediately to the quarantine station at or nearest the port the occurrence, on board, of any death or any ill person among passengers or crew.

(Approved by the Office of Management and Budget under control number 0920-0134)

**Subpart E--Requirements Upon Arrival at U.S. Ports:
Sanitary Inspection**

Sec. 71.41 General provisions.

Carriers arriving at a U.S. port from a foreign area shall be subject to a sanitary inspection to determine whether there exists rodent, insect, or other vermin infestation, contaminated food or water, or other insanitary conditions requiring measures for the prevention of the introduction, transmission, or spread of communicable disease.

Sec. 71.45 Food, potable water, and waste: U.S. seaports and airports.

(a) Every seaport and airport shall be provided with a supply of potable water from a watering point approved by the Commissioner of Food and Drugs, Food and Drug Administration, in accordance with standards established in title 21, Code of Federal Regulations, parts 1240 and 1250.

(b) All food and potable water taken on board a ship or aircraft at any seaport or airport intended for human consumption thereon shall be obtained from sources approved in accordance with regulations cited in paragraph (a) of this section.

(c) Aircraft inbound or outbound on an international voyage shall not discharge over the United States any excrement, or waste water or other polluting materials. Arriving aircraft shall discharge such matter only at servicing areas approved under regulations cited in paragraph (a) of this section.

Sec. 71.48 Carriers in intercoastal and interstate traffic.

Carriers, on an international voyage, which are in traffic between U.S. ports, shall be subject to inspection as described in Secs. 71.31 and 71.41 when there occurs on board, among passengers or crew, any death, or any ill person, or when illness is suspected to be caused by insanitary conditions.

13.2 Gastrointestinal Illness Surveillance System

13.2.1 Introduction

13.2.2 Forms

13.2.1 Introduction

purpose

The following forms are provided as guides to standardize the collection of information required to assess the patterns of gastrointestinal illnesses and monitor for outbreaks aboard vessels. These forms are downloadable at the Vessel Sanitation Program website: http://www.cdc.gov/nceh/vsp_

13.2.2 Forms

Gastrointestinal Illness Surveillance System Questionnaire

(To be completed if you experienced gastrointestinal illness)

Vessel Name:		Voyage No. :		Date:
Last Name:		First Name:		
Date of Birth:	(mm/dd/yyyy)	Age:	(in years)	Sex M / F
Cabin Number:		Total Number of People in Cabin:		
Dining Seating:		Dining Table Number:		
Symptoms Started Date:	(mm/dd/yyyy)	Time:	(hh:mm)	AM / PM

Do you know other people ill with the same symptoms?	Yes / No
--	----------

If yes, please list their names:

Did you stay overnight or longer in a boarding city before you joined the vessel?	Yes / No
---	----------

If yes, where? City: State: Country:

Was the overnight stay in a hotel/motel/commercial residence?	Yes / No
---	----------

If yes, what was the name and address of the hotel, motel/commercial residence

Name:

Address:

City:

State:

Country:

How did you travel to the city where you boarded the ship for this cruise?
--

If yes, please select all of the following that apply:

Airplane Airlines: Flight No.:

Automobile

Bus/Motorcoach

Train

Other Please specify:

Are you a member of a tour group?	Yes / No
-----------------------------------	----------

Prior to boarding the ship, did you participate in a pre-embarkation tour/package?	Yes / No
--	----------

If yes, which tour(s)/package(s) did you participate in? (list all)

Prior you your illness, did you go ashore at any of the ports of call?	Yes / No
--	----------

If yes, please list the ports of call where you went ashore

Did participate in any shore excursions at any port of call?	Yes / No
--	----------

If yes, which shore excursions did you participate in? (list all)

Did you eat anything while you were ashore at any port of call?	Yes / No
---	----------

Did you drink anything (including drinks with ice) while ashore at any port of call?	Yes / No
--	----------

What did you think is the cause of your illness?:

**PLEASE TURN THIS FORM OVER TO PROVIDE FOOD AND SHIPBOARD
ACTIVITIES HISTORY**

Last Name _____

First Name _____

Meal and Activities – Aboard Vessel – Prior to Illness

Please list the *specific* vessel locations of the meals you consumed and the vessel activities you participated in before you became ill

Day of illness onset [Date: _____]		Day before illness onset		Two days before illness onset		Three days before illness onset	
Breakfast		Breakfast		Breakfast		Breakfast	
Place: _____		Place: _____		Place: _____		Place: _____	
Time: _____		Time: _____		Time: _____		Time: _____	
Items eaten/drunk		Items eaten/drunk		Items eaten/drunk		Items eaten/drunk	
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
Lunch		Lunch		Lunch		Lunch	
Place: _____		Place: _____		Place: _____		Place: _____	
Time: _____		Time: _____		Time: _____		Time: _____	
Items eaten/drunk		Items eaten/drunk		Items eaten/drunk		Items eaten/drunk	
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
Dinner		Dinner		Dinner		Dinner	
Place: _____		Place: _____		Place: _____		Place: _____	
Time: _____		Time: _____		Time: _____		Time: _____	
Items eaten/drunk		Items eaten/drunk		Items eaten/drunk		Items eaten/drunk	
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
Snack		Snack		Snack		Snack	
Place: _____		Place: _____		Place: _____		Place: _____	
Time: _____		Time: _____		Time: _____		Time: _____	
Items eaten/drunk		Items eaten/drunk		Items eaten/drunk		Items eaten/drunk	
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
Activities		Activities		Activities		Activities	
AM	PM	AM	PM	AM	PM	AM	PM
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

13.3 Gastrointestinal Illness Surveillance System Reporting

13.3.1 Introduction

13.3.2 Procedures

13.3.1 Introduction

Operations
Manual

The details of the Gastrointestinal Illness Surveillance data collection and notification system are contained in the VSP Operations Manual in Chapter 4.

Following are some sample itineraries of vessels that may call upon a U.S. port. The ports where the routine gastrointestinal illness surveillance report is required at least 24 hours before arrival, but not more than 36 hours, are marked with an **»**.

sample
itineraries

Itinerary A

Port Everglades, FL
at Sea
at Sea
St. Thomas, U.S. VI
Philipsburg, St. Maarten
at Sea
Nassau, Bahamas
Port Everglades, FL **»**

Itinerary C

Barcelona, Spain
at Sea
at Sea
at Sea
St. Thomas, U.S. VI **»**
at Sea
Port Everglades, FL

[Note: The report in this itinerary includes passengers and crew members during the 15 days prior to arrival in St. Thomas, U.S. VI.]

Itinerary B

Vancouver, BC
at Sea
Juneau, AK **»**
Ketchikan, AK
Sitka, AK
at Sea
Seward, AK
Vancouver, BC

Itinerary D

Miami, FL
at Sea
St. Barthélemy, French W.I.
San Juan, PR **»**
St. Thomas, U.S. VI
at Sea
Freeport, Bahamas
Miami, FL **»**

13.3.2 Submission Procedures

The reports may be submitted as follows:

telephone

Telephone: 800-323-2132 or 954-356-6650

fax

Fax: 954-356-6671

e-mail

Electronic Mail: vsp-report@cdc.gov

website

Website (User ID and Password required):

<http://wwwn.cdc.gov/vsp>

telephone
call
required

A telephone notification to the Vessel Sanitation Program at the telephone numbers listed above shall accompany a special 2% report required when the vessel is within 15 days of expected arrival at a U.S. port, even when the special 2% report is submitted via fax, electronic mail or website.

13.4 Gastrointestinal Illness Outbreak Investigation

- 13.4.1 Introduction
- 13.4.2 Objectives
- 13.4.3 Outbreak Investigation Procedures
- 13.4.4 Report
- 13.4.5 Gastrointestinal Illness Specimens
 - 13.4.6 Food and Water Samples

13.4.1 Introduction

- introduction Outbreaks of gastrointestinal illness aboard cruise ships are relatively infrequent occurrences. Since implementation of the cooperative program between the cruise industry and the VSP, the outbreak rate on vessels each year has steadily declined.
- vigilance Ongoing vigilance and rapid outbreak detection and response is still warranted. Since so many people share the same environment, meals and water, disease can often spread quickly to passengers and crew members on the vessel and overwhelm the vessel's medical system. The infection can also continue unabated between cruises, if the proper interventions are not instituted.
- consultation An outbreak of gastrointestinal illness occurs aboard a vessel when the number of cases are in excess of expected levels for a given time period. When the cumulative proportion of reportable cases of gastrointestinal illness reaches 2% among passengers or 2% among crew, and the vessel is within 15 days of arrival at a U.S. Port, the vessel shall submit a special report to VSP. This will provides an early opportunity for consultation to potentially avert more illness among passengers and crew members.
- monitoring In most instances, a 2% proportion of illness will not lead to an investigation aboard the vessel, but will provide the opportunity to discuss and monitor illness patterns, and collaboratively develop intervention strategies. Members of the VSP staff are available at anytime to discuss disease transmission and intervention questions.

<i>investigation</i>	Outbreaks of gastrointestinal illness aboard cruise ships are relatively infrequent occurrences. Since implementation of the cooperative program between the cruise industry and the VSP, the outbreak rate on vessels each year has steadily declined.
<i>special circumstances</i>	Under special circumstances, when an unusual gastrointestinal illness pattern or disease characteristic is found, an investigation may be conducted when the proportion of cases is less than 3%. These special circumstances may include a high incidence of illness in successive cruises, unusual severity of illnesses or complications, or a large number of persons reporting the illness over a brief period of time.
<i>rapid response</i>	Conducting an outbreak investigation aboard a vessel demands a rapid, organized, and comprehensive response. Because of the turnover of passengers, and sometimes the crew members, the investigation must be rapid to be able to collect data needed to identify the cause.
<i>collaboration</i>	The investigation is a collaborative effort between the cruise line, the passengers and crew members aboard the vessel, and CDC. An organized plan drafted between the organizations and individuals involved, therefore, is crucial in conducting a successful investigation, a comprehensive effort that includes epidemiologic, environmental, and laboratory studies. Recommendations based on the success of the investigation can then be implemented to prevent a recurrence on the following cruise.

13.4.2 Objectives

objectives

The objectives of an investigation are to:

- (1) Determine the extent of the gastrointestinal illness among passengers and crew;
- (2) Identify the agent causing the illness;
- (3) Identify risk factors associated with the illness; and
- (4) Formulate control measures to prevent the spread of the illness.

13.4.3 Outbreak Investigation Procedures

contingency plan

The early stages of an investigation are usually coordinated aboard the vessel by the vessel's medical staff in cooperation with engineering staff and hotel staff. It is important to have a coordinated contingency plan in place on board the vessel before the need for plan implementation. All staff with a potential for involvement investigation should be familiar with the contingency plan.

periodic review

This preliminary preparation will assist the vessel with the necessary rapid implementation of investigation and response measures before the arrival of the VSP team. The outbreak contingency plan should be periodically reviewed to ensure it will still meet the vessel's needs in dealing with an outbreak.

specimens and samples

Timely collection of medical specimens and food and water samples are important in the disease investigative process. The proper materials and techniques for collection and preservation are a part of the planning. It is important to periodically review these to make sure they are on hand and ready to use in the event they are needed.

ready to use

A list of recommended medical specimen and food sample collection supplies for investigating gastrointestinal outbreaks may be found in sections 13.4.5 and 13.4.6 of this annex. Vessels, with no medical staff aboard may choose to stock items 1-9 only unless there is a qualified staff member aboard, capable of performing venipuncture for collection of serum specimens.

*useful
information*

In order to assist in the rapid evaluation of the extent of illness among passengers and crew, to identify the causative pathogen and associated risk factors, the VSP may request the following items:

(1) the gastrointestinal illness surveillance log for the duration of the current cruise;

(2) self-administered 72 hour food and activity questionnaires completed by cases;

(3) daily newsletters distributed to passengers;

(4) a complete list of food items and menus served to both crew and passengers for the 72 hour period before the peak onset of illness date of most cases; and

(5) a complete list of ship and shore activities of passengers for the cruise.

survey

Additionally, VSP may request distribution of a survey to all passengers and crew members. VSP will provide this survey to the vessel. Completed surveys should be held in the infirmary until collection by VSP staff for epidemiologic analysis.

interviews

Interviews with cases may also be useful for identifying the etiology and associated risk factors of an outbreak. When distributing the surveys, the medical staff should advise the cases that interviews may be requested when VSP arrives at the vessel.

13.4.4 Report

*preliminary
report*

Following an outbreak investigation, a preliminary report of findings based on available clinical and epidemiologic information, environmental inspection reports of the investigation, and interim recommendations, will be presented to the master of the vessel. Based on preliminary findings, additional materials, including additional passenger and crew information, may be requested from the cruise line or the vessel and follow-up studies may be undertaken, to address specific suspicions or concerns.

final report

The report presented to the master of the vessel will remain preliminary until more extensive epidemiologic and laboratory studies have been completed, and a final report containing summary recommendations has been distributed.

13.4.5 Gastrointestinal Illness Specimens

Gastrointestinal Illness Specimen Supplies

*specimen
supplies*

20-50 wide-mouth plastic jars or specimen cups with screw caps for stool specimens;

(2) 20 plastic bags for storing specimen cups;

(3) Disposable medical gloves;

(4) Plastic disposable spoons for collecting stool

(5) 20 sterile bottles or tubes containing bacterial preservative and transport medium (e.g., Cary-Blair);

(6) Sterile swabs;

(7) Rectal swabs;

(8) Stool preservative medium for parasites;

(9) A large commercial roll of plastic wrap;

(10) Sterile phlebotomy supplies for obtaining serum specimens (needles, syringes, swabs);

(11) Sterile pipettes;

(12) 20 serum separator tubes (containing no anticoagulant [red tops]);

(13) 20 nunc tubes for serum separation;

(14) Shipping containers (for diagnostic specimens) and;

(15) Shipping container labels and markings (as required by current shipping regulations for diagnostic specimens).

Specimen Collection

*specimen
collection*

It may be advisable to collect clinical specimens of stool, vomitus or serum from passengers and crew members with reportable cases of gastrointestinal illness. Timely notification of the vessel as to what samples and information will be required is essential. Collection of specimens for analysis for viruses, bacteria or parasites may be recommended depending upon the likely etiology of disease.

*request
procedures*

It is recommended that specimens be requested from patients during clinical evaluation in the infirmary, or subsequent to infirmary visits by direct contact with or letter from medical staff. Individuals asked to provide specimens should each be provided with disposable gloves, 2 specimen cups, a disposable spoon, and plastic wrap. The following is suggested language for a letter to passengers for request of stool specimens as well as instructions to passengers and crew for collection of stool:

Request to Passengers for Stool Specimens

*specimen
request*

The [U.S. Public Health Service /Name of Cruise Line/ Medical Department] is requesting stool specimens from some people who became ill with gastrointestinal illness on the cruise. Please give one cup to a friend who has recently become ill and use the other cup for yourself. Put your next bowel movement into the cup and return the cup to the hospital as soon possible so it can be refrigerated.

Patient Instructions

*patient
instructions*

- (1) Urinate into the toilet (if you feel the need).
- (2) Wash and dry hands.
- (3) Lift the toilet seat. Place sheets of plastic wrap over the toilet bowl, leaving a slight dip in the center. Place the toilet seat down. Pass some stool onto the plastic wrap. Do not let urine (if possible) or water touch the stool specimen.
- (4) Using the spoon given to you, place bloody, slimy or whitish areas of the stool into the container first. Fill the cup at least 2/3

full, if possible.

(5) Tighten the cap.

(6) Wash hands.

(7) Label the specimen jar with your name, the date, and your cabin number.

*specimen
labeling*

Medical Staff Instructions

Please ensure that each specimen is properly labeled with:

(1) Date of collection;

(2) Passenger or crew member name and date of birth (or a unique identifying number with a separate log linked to name and date of birth); and

(3) Notation on use of antidiarrheal or antibiotic medication.

*collection,
storage, and
transport*

Complete guidelines for collection and storage of specimens for viral, bacterial and parasite analysis are listed below, although it may not be necessary to implement all procedures during each investigation. Transport of specimens will be arranged in collaboration with VSP.

Guidelines for Collecting Fecal Specimens for Viral Diagnosis

(Modified from *MMWR*, 1990; 39, [RR-5];19.)

Stool for Viral Diagnosis

first 48 hours

(1) Collect stool specimens in the first 48 hours. Specimen collection should not await the results of epidemiologic and other investigations because delay will almost certainly preclude a viral diagnosis. If information gathered subsequently indicates that a viral etiology is unlikely, the specimens can be discarded.

bulk specimens

(2) Collect 10 diarrhea bulk specimens, if possible. Bulk specimens, enough to fill a large stool cup, are preferred. Serial specimens from persons with acute, frequent, high-volume diarrhea are particularly useful. The smaller the specimen and

the more formed the stool, the lower the diagnostic yield. Rectal swabs are of little or no value in viral detection. Specimens from at least 10 ill persons should be collected to maximize the chance that a diagnosis can be made. The diagnostic yield is low when specimens from <10 persons are submitted.

*storage
temperature*

(3) Store specimens at 4°C (40°F). Freezing may destroy the characteristic viral morphology that permits a diagnosis by electron microscopy.

*prevent cross-
contamination*

(4) Special care must be taken to prevent cross-contamination of specimens during collection and transport because new amplification techniques are exquisitely sensitive.

Paired Serum Specimens for Viral Diagnosis

timing

(1) Acute-period serum specimens should be collected during the first 5 days of symptoms. The convalescent-period serum specimen should be collected during the third to sixth week after illness.

number

(2) Collect 10 pairs from ill persons (the same persons submitting stool specimens) and 10 pairs from well persons.

quantity

(3) Serum specimens from adults should be 10 mL and serum specimens from children should be 3 mL.

red top tubes

(4) Storage tubes containing no anticoagulant (tubes with red tops) should be used for collection.

processing

(5) If a centrifuge is available, centrifuge the specimen for 10 minutes and remove the serum using a pipette. If no centrifuge is available, the blood specimens can sit in a refrigerator until a clot has formed; remove the serum using pipettes, as above.

storage

(6) Place the serum into an empty nunc tube, label, then refrigerate. Do not freeze.

*water, food,
and
environmental
samples*

Other Specimens for Viral Diagnosis

Viruses causing gastroenteritis cannot routinely be detected in water, food, or environmental samples. Viruses have been successfully detected in vomitus specimens. These should be collected and sent using same methodology as for stool specimens.

Guidelines for Collecting Fecal Specimens for Bacteriologic Diagnosis

- | | |
|--------------------------------|--|
| <i>media temperature</i> | (1) Before use, the transport media should be stored in a refrigerator or at room temperature. If the transport media is stored at room temperature, it should normally be chilled for 1 to 2 hours by refrigeration before use. |
| <i>rectal swabs</i> | (2) At least 2 rectal swabs or swabs of fresh stools should normally be collected for bacterial analysis and placed in refrigerated Cary-Blair transport media. |
| <i>methodology</i> | (3) It is recommended that the swabs be inserted initially into the transport media to moisten, then inserted about 1 to 1-1/2 inches into the rectum, gently rotated, and removed for insertion individually into the same tube of transport media. |
| <i>visible fecal material</i> | (4) If possible, there should be visible fecal material on the swabs. |
| <i>place both in same tube</i> | (5) Both swabs should be inserted into the same tube of media and the swabs pushed completely to the bottom of the tube. |
| <i>break off stick</i> | (6) The top portion of the stick touching the fingers should be broken off and discarded. |
| <i>refrigerate specimens</i> | (7) Refrigeration during transport may be accomplished by shipping in an insulated box with frozen refrigerant packs. The specimens shall never be frozen during storage or transport. |

Guidelines for Collecting Fecal Specimens for Parasite Diagnosis

*parasite
specimens*

In the event a disease of parasitic etiology is suspected, arrangements for shipment of appropriate specimen containers containing 10% formalin and PVA (polyvinyl-alcohol) will be made.

A summary table with instructions for collecting clinical specimens during outbreaks to test for bacteria, viruses and parasites is available at

http://www.cdc.gov/foodborneoutbreaks/guide_sc.htm

13.4.6 Food and Water Samples

Food and Water Sample Collection Kit

food sample kit A recommended food and water sampling kit would include:

*sample
containers*

(1) Sterile sampling containers (15 or more sealable plastic bags and wide-mouth screw top jars; 15 water sample bottles with sodium thiosulfate solution to provide concentration of 100 mg per mL of sample volume; foil or heavy wrapping paper);

collection tools

(2) Sterile specimen collection devices (spoons, tongs, scoop, knife, scissors, swabs and pipettes);

*disinfection
agents*

(3) Disinfection agents (sanitizing solution, 95% ethyl alcohol and propane torch); and

*support
equipment*

(4) Support equipment (plastic gloves, plastic container liners for iced samples, water-proof marking pen for sample identification; roll of adhesive or masking tape; labels; waterproof cardboard tags with ties; insulated ice chests; frozen refrigerant packs).

Food and Water Sampling Procedures

<i>sample plan</i>	Environmental sampling should be directed towards suspect food and sources identified by the preliminary epidemiologic investigation.
<i>aseptic techniques</i>	Food and water samples should be collected using aseptic techniques. Washed and gloved hands and sterile sampling utensils and containers protect the integrity of the sample during collection. Water taps used for collection of water should be sterilized with heat or chemicals and then sample should be collected after a minute of flow time.
<i>sample amount</i>	Approximately 200 grams or 200 mL of sample will usually suffice for the laboratory analytical requirements. Carefully squeeze most of the air out of bag before sealing food samples.
<i>sample identification</i>	Sample numbers should be assigned on each collection container and recorded on a sample log that will accompany samples to the laboratory. Information that identifies the date, time, and location of collection, product information, codes, storage conditions and temperatures for each sample should be recorded on the sample log. Include contact information for the person in charge of collecting the samples on the vessel.
<i>sample temperatures</i>	Food and water samples should be held below 5°C (41°F), but not frozen. Sufficient frozen refrigerant packs should be used to maintain cold sample temperatures during transport to the laboratory.

13.7 Warewashing Evaluation

- 13.7.1 Introduction
- 13.7.2 Machine Data Plates
- 13.7.3 Evaluation Procedures
- 13.7.4 Routine Monitoring

13.7.1 Introduction

13.7.1.1 Methodology Source

resources

The following warewashing machine evaluation procedure was compiled from the NSF International (NSF) brochure Food Service: *Recommended Field Evaluation Procedures for Spray-Type Dishwashing Machines*, 1991, and *Food Code*, 1999. ANSI/NSF 3-1996, *Commercial Spray-Type Dishwashing and Glasswashing Machines* and the CDC / VSP Operations Manual should be consulted for recommended construction and operational parameters.

13.7.1.2 Recommended Evaluation Equipment

The following equipment to conduct warewashing evaluations is recommended:

TMD

(1) Thermocouple or thermistor temperature-measuring device for warewasher operational temperatures;

maximum registering

(2) Maximum registering temperature-measuring device or temperature-sensitive tapes for verifying hot water warewasher final rinse temperature, 73°C (160°F);

wax crayons

(3) Optional: Calibrated melting temperature wax crayons with melt points set at 82°C (180°F) and another at 91°C (195°F);

pressure gauge

(4) Pressure gauge, as applicable, for determining in-line pressure of hot water at injection point of warewasher in the 100-170 kilopascals (15-25 pounds per square inch) range;

chemical test kit

(5) Chemical test kits for different chemical sanitizer types used on the vessel;

- flashlight* (6) Flashlight;
- tape measure* (7) Tape measure; and
- timing device* (8) Watch or stop watch.

calibrated The temperature-measuring devices and pressure gauges shall be calibrated against standards to ensure reliable warewasher evaluations. The chemical test kits and temperature sensitive tapes shall be maintained as specified by their manufacturer to ensure accuracy.

mercury spills Mercury-filled maximum registering temperature-measuring devices are subject to breakage and shall be carefully used during the evaluations. If they break, a through clean-up shall be performed before warewashing operations resume.

13.7.2 Machines Data Plates

data plate required The required manufacturer's data plate shall be studied for correct operating parameters. If data plate indicates a flow pressure, the machine shall have a gauge or a gauge valve to measure it. If manufacturer's data plate does not state a flow pressure, the machine is not required to have a gauge or a gauge valve.

temperature requirements The temperatures stated on the warewash machine data plate shall be considered minimums. Except for chemical sanitizing machines, the machine should not heat to more than 9°C (15°F) above its minimum temperatures to reduce steam buildup and baking food particles on the articles being washed. Differences will be noted on the tank temperatures when the pumps are activated and when they are not.

conform to ANSI / NSF 3 - 1996 The warewash machine temperatures shall conform to those specified in these guidelines for the specific type of machine. For those manufactured to different temperature standards, evidence shall be furnished that they at least conform to the minimum equivalent standards of ANSI/NSF 3-1996, *Commercial Spray-Type Dishwashing and Glasswashing Machines*.

13.7.3 Evaluation Procedures

13.7.3.1 Operating Procedures

<i>prescraped / racked</i>	(1) Dishes shall be properly prescraped and racked.
<i>scrap trays</i>	(2) The machine prewash “scrap trays” shall be clear of excessive soil and debris.
<i>curtains / baffles</i>	(3) The curtains and baffles on conveyor type machines shall be intact and in their proper position.
<i>conveyor speed</i>	(4) The conveyor speed and cycle times shall be set according to manufacturer’s specifications.
<i>overflow</i>	(5) The overflow standpipe shall be installed, not blocked or leaking.
<i>nozzles aligned</i>	(6) The wash and rinse nozzles shall be properly aligned and provide a uniform spray pattern.
<i>nozzles clear</i>	(7) The wash and rinse nozzles shall be clear of obstructions.
<i>manifolds repair</i>	(8) The wash and rinse manifolds shall be in good repair, properly installed in the machine, and end caps installed.
<i>heating elements</i>	(9) The heating elements used in tanks shall not have mineral or other deposits on them.
<i>strainer clear</i>	(10) The rinse supply line strainer shall be clear of debris.
<i>TMDs accurate</i>	(11) The wash and rinse tanks, and final rinse manifold temperature-measuring devices shall be accurate to $\pm 1.5^{\circ}\text{C}$ ($\pm 3^{\circ}\text{F}$).
<i>pressure regulator</i>	(12) The pressure regulator shall be functioning properly.
<i>flow pressure</i>	(13) The flow pressure shall be 100-170 kilopascals (15-25 pounds per square inch).

13.7.3.2 Temperature Evaluation

<i>manufacturer’s instructions</i>	(1) The machine shall be installed and operated in accordance to the manufacturer’s instructions.
<i>warm-up</i>	(2) The machine shall be run through at least two complete cycles before testing unless it has been operating just before the evaluation. On conveyor machines, this is accomplished by running at least two racks through the machine.
<i>additional warm-up</i>	(3) When minimum temperatures are not indicated on the machine-mounted temperature-measuring devices, additional preevaluation cycles may be run to determine, if higher temperatures are possible.

*tank
thermometer
calibration*

(4) Temperatures of the wash water and pumped rinse shall be taken directly from the tanks of the machines and compared against the machine mounted temperature-measuring devices. The evaluation temperature-measuring device probe shall be placed in the tank near the machine mounted temperature-measuring device probe, if possible.

*sanitizing rinse
TMDs*

(5) A maximum registering temperature-measuring device, remote sensing thermocouple or nonreversible thermo-labels such as paper temperature-measuring devices that turn from silver to black or similar device shall be used to confirm the effectiveness of heat sanitization.

rinse exposure

(6) The maximum registering temperature-measuring device shall be attached in a vertical position in a rack that is exposed to the final sanitizing rinse spray at the approximate level of a plate. The nonreversible thermo-labels shall be attached to the center of a dry ceramic plate.

*high wash /
rinse
temperature
factor*

(7) The effect of the temperatures of the wash water and pumped rinse shall be factored into the evaluation, if the tank thermometers indicate they are above 74°C (165°F). *The maximum-registering TMD may also be checked at the end of each part of the cycle to verify that the wash and rinse temperatures have not been in excess of 71°C (160°F).*

*effective
sanitization*

(8) Effective sanitization shall be evaluated by noting one of the following:

In a mechanical operation, the temperature of the fresh hot water sanitizing rinse as it enters the manifold may not be more than 90°C (194°F), or less than:

(A) For a stationary rack, single temperature machine, 74°C (165°F); or

(B) For all other machines, 82°C (180°F).

(C) A utensil surface temperature of 71°C (160°F) as measured by an irreversible registering temperature indicator shall be achieved.

*indirect
methods*

(9) The final rinse spray temperature may be indirectly evaluated by using a non-reversible thermo-labels attached to manifold or by using a calibrated melting temperature wax crayons. A mark is made on a dry portion of the final sanitizing rinse manifold or supply line with a crayon that melts at 82°C (180°F) and another that melts at 91°C (195°F).

13.7.3.3 Chemical Sanitizing Evaluation

*chemical
sanitizing*

Obtain sample at end of the final chemical sanitizing rinse cycle, and use a sanitizer test kit to confirm sanitizer level is at minimum specified on machine data plate and in these guidelines.

13.7.4 Routine Monitoring

*periodic
detailed
evaluations*

Proper warewashing is critical to protecting the health of a vessel's passengers. The procedures provided in this annex may assist the vessel crew in periodically verifying the proper operation of its warewashing machines. Following the manufacturer's recommendations for maintenance and operation will ensure the warewashing machines continue to meet the criteria of these guidelines and standards of ANSI/NSF 3-1996, *Commercial Spray-Type Dishwashing and Glasswashing Machines*.

*start-up
evaluations*

During each warewashing machine's startup, the proper setup and operation of the equipment should be verified with basic checks. These would include checks of the tank, manifold, and curtain assemblies to ensure they are properly installed. Proper operating temperatures should be verified to meet the minimum required temperatures during the start-up.

*routine
operation
evaluations*

Periodic operation and temperature checks by the warewashing crew during the warewashing time should detect problems soon after they occur. The person removing the clean and sanitized ware must examine each piece to determine if it is clean. Periodic management checks of the warewashing process during operation verify that the machines are operating properly and the utensils processed are indeed clean and sanitized.

simple records

Simple records can assist in the warewash machine monitoring process. A review of these records can ensure proper monitoring is being conducted and assist in determining a gradual or severe malfunction of the machine.

13.8 Inspection Report

13.8.1 Report Form

The copy of the VSP Inspection Report form follows on the next page.

During the implementation of the VSP Operation Manual, an electronic version of this form will also be used. Copies of the electronic version will be returned to the cruise line by electronic mail.

13.9 Corrective Action Statement

13.9.1 Introduction

13.9.2 Format

13.9.1 Introduction

<i>purpose</i>	VSP has established a procedure for post-inspection reporting of corrective action to encourage the correction of deficiencies noted during an inspection. A signed corrective action statement shall not affect the inspection score.
<i>critical item monitoring</i>	The corrective action statement, particularly for critical items, should include a management monitoring plan to ensure that the procedure or process found out of control will be monitored and controlled in the future. The public health goal of the inspection is to prevent the recurrence of the critical deficiency in the specific instance where it was found and generally in future similar operations aboard the vessel.
<i>publicly available</i>	The corrective action statement shall be appended to the final inspection report for future reference and public distribution, if requested.
<i>e-mail submission</i>	The corrective action statement may be submitted to VSP by electronic mail. Please send it to vsp@cdc.gov , and include your vessel name, corrective action statement and inspection date on the message subject line. It is preferable that the corrective action statement be submitted as an attached word processing format file.
<i>mail submission</i>	The corrective-action statement may also be mailed to: CDC / Vessel Sanitation Program 1850 Eller Drive - Suite 101 Ft. Lauderdale, FL 33316 USA

13.9.2 Format

*example
statement*

Date

CDC / Vessel Sanitation Program
1850 Eller Drive - Suite 101
Ft. Lauderdale, FL 33316
USA

Dear Sir:

The following actions have been taken to correct each of the deficiencies noted during the inspection of _____ (Name of Vessel) on _____ (Date) , at _____ (Port) .

Item Number	Deficiency / Corrective Action
-------------	--------------------------------

1.

2.

3.

(Continue list until all violations have been listed.)

Sincerely,

(Signature)

Name

Title

Company

13.10 Summary of Sanitation Inspections of International Cruise Ships

13.10.1 Introduction

13.10.2 Format

13.10.3 Contact Information

13.10.1 Introduction

introduction

Every vessel that has a foreign itinerary and that carries 13 or more passengers is subject to twice-yearly inspections and, when necessary, to reinspection by the Centers for Disease Control and Prevention (CDC). To ensure a clean and healthful environment, cruise ships must meet the criteria established by CDC.

The score and the complete inspection report for each inspection are published on the CDC website.

The ship's level of sanitation is acceptable to CDC if its score on the inspection is 86 or higher.

The website address for these scores and inspection reports is:
<http://www.cdc.gov/nceh/vsp> .

13.10.2 Format

online information

The VSP website has a searchable database of inspection report summaries and lists. The complete inspection report information is also retrievable.

lists

Lists

Some of the lists available on the VSP website include:

- Summary of Most Recent Ships Inspected;
- Ships Inspected within Past 2 Months;
- Ships with Not Satisfactory Scores (under 86); and
- Summary of Inspection Scores (Green Sheet).

These lists show the data by:

- Ship Name;
- Inspection Date; and
- Score.

*complete report
available*

Further information can be obtained on a particular ship, including all scores for that ship and a inspection report preview.

The Summary of Inspections with Violations is provided on the VSP website. This report provides a categorical review of the deficiencies noted along with the number of points deducted for that category and the numerical score for the inspection.

The details of the inspection with the specific deficiencies and recommendations are also accessible from this page.

Search

*search
possibilities*

The inspection report data is also searchable from this database within the following search categories:

- Ship Name;
- Inspection Date;
- Most Recent Date;
- All Dates;
- Range of Dates; and
- Score.

Score Categories include:

- All;
- 86 or higher -- Satisfactory Scores; and
- 85 or lower -- Not Satisfactory Scores.

*search result
sorts*

The search results may be sorted by:

- Inspection Date (most recent first);
- Ship Name (alphabetical);
- Score (high-low); and
- Score (low -high).

13.10.3 Contact Information

*further
information*

Further information on the Vessel Sanitation Program and the inspection results and the vessel's corrective action statements maybe obtained through electronic mail at: vsp@cdc.gov , by telephone at 800-323-2132 or via fax at 770-488-4127.