ALASKA LEGISLATURE COMMITTEE FILES 2007-2008 HTRA 12400

Passenger Vessel Wastewater Sampling and Sample Login Procedures Inspection Review for Priority Pollutants

for the

Island Princess @ Juneau Dock

Conducted June 23, 2006, 10:25 AM

Observations and Concerns

Submitted by

Lisa Hoferkamp
University of Alaska Southeast
Dept. Natural Sciences
11120 Glacier Highway
Juneau, AK 99801
July 4, 2006

Attachments:

Completed "2006 Cruise Ship Wastewater Discharge Monitoring Program Quality Assurance/Quality Control Sampling Audit Checklist"

Observations:

At 10:00 AM, Friday, June 23, 2006, I arrived at the Juneau, AK docking point of the M/V Island Princess. Sampling personnel Tessina Davidson and David Wetzel of Admiralty Environmental Inc arrived at the gangway with the sampling containers and equipment at 10:25 AM. The three of us boarded the ship and after obtaining the proper shipboard passes, were met by Mr. Krasimer, Environmental Officer for the Island Princess. Mr. Wetzel then proceeded to explain that this particular sampling event would take place in two parts. The first part involved collection of a sample from a point immediately after the UV treatment that would be used for comparison and validation of the Island Princess' independent wastewater testing methods. I did not audit this part of the sampling event. The second part of the sampling event involved collection and testing of wastewater samples immediately prior to overboard discharge in compliance with the 2006 Cruise Ship Wastewater Discharge Monitoring Program. The second part of the sampling event was that which is described in this report. Before beginning the sampling event, Mr. Wetzel requested ice for the sampling coolers which was then obtained from the ice machine of a nearby galley. The group went to the engine room where Mr. Wetzel verified that the ship was currently discharging. The group then proceeded below deck to the location of the first part of the sampling event. At this point Admiralty Environmental personnel donned the appropriate safety gear (see below) and proceeded to carry out on-site testing of Island Princess wastewater. Safety gear used in this sampling event included:

- TYVEK suit
- safety glasses
- latex gloves
- hearing protection

Upon completing the first part of the sampling event, the group proceeded to the sampling port described within the 2006 Island Princess VSSP and Mr. Wetzel confirmed the location of the sampling port (within 50 ft of the overboard discharge). Mr. Krasimer then opened the sampling port and allowed it to purge into a catch basin. While the sampling port was purging Mr. Wetzel and Ms. Davidson prepared sampling containers. The correct labeling, type of each container and presence of appropriate preservative was verified (see sampling checklist). At 11:25 AM Mr. Wetzel collected a sample from the wastewater stream which he passed to Ms. Davidson. Ms. Davidson proceeded to conduct on-site field tests on this wastewater sample. Results from these field tests follow.

- pH = 6.97
- T = 37.8 °C

- Cl_2 (free) = 0.01 ppm
- Cl_2 (free) = 0.09 ppm

Ms. Davidson was careful to rinse probes and containers adequately thus avoiding any major cross contamination. She very efficiently completed field tests and accurately recorded results in the field notebook. Waste from field tests was properly collected and removed from the ship. Calibration dates for field equipment was readily available and acceptable according to the 2006 QA/QC Plan. It was noted that the method used for introduction of the Cl_2 reagent may result in cross contamination but at the levels under investigation, this does not constitute a significant source of error.

While Ms. Davidson completed field tests, Mr. Wetzel collected the remaining samples required under the 2006 Cruise Ship Wastewater Discharge Monitoring Program. During sample collection, I verified that the appropriate headspace for each of the samples was as per the QA/QC plan (see sampling checklist). Once collected, samples were placed into the coolers along with the temp blanks. The temperature of the temp blanks was verified (24°C and 26°C for F.C.) and recorded in the field notebook. A photograph of the sample port was obtained along with the required initials from the assisting environmental officer (field notes and Chain of Custody). Mr. Wetzel also completed an Admiralty Environmental sampling checklist.

Upon completing sample collections and field parameter determinations the group proceeded to the control room where the ship's discharge logs with relevant tank volumes were obtained.

Ms. Davidson, Mr. Wetzel and I exited from the ship and returned to Analytica Alaska Inc. (5438 Shaune Dr., Juneau, AK). I observed Mr. Wetzel relinquish custody of the sample coolers to sample custodian Sally Wanstall at 12:30 PM. Sample holding times were met. The temperature of the sample blank representing the bulk of the samples was noted at 2.1°C while the sample blank representing the fecal coliform sample was noted at 0.7°C. The fecal coliform sample was transferred to a storage refrigerator maintained at 3.4°C. VOC vials were checked for air bubbles and their absence or presence noted (one VOC vial contained a small air bubble). The pH of samples to be used for TKN and total phosphorous was confirmed. Except for samples to be used for SS, BOD and metals determinations, all bottles were transferred to a holding refrigerator maintained at 5°C. SS, BOD and metals samples were left on the benchtop in order to warm to room temperature. It was verified that upon attaining RT, the metals sample would be divided, one-half filtered and both halves then properly preserved. SS and BOD samples would also be properly processed upon reaching RT.

Recommendations:

- No changes to sampling and processing practices are recommended at this time.

The Admiralty Environmental Inc. and Analytica Alaska Inc. personnel are commended for their professional and efficient collection and processing of field samples.

Clarification on any portion of this report may be directed to:

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Dept. Natural Sciences
University of Alaska Southeast
11120 Glacier Highway
Juneau, AK 99801
(907) 796-6538
jflh@uas.alaska.edu

STATE OF ALASKA

SARAH PALIN, GOVERNOR
410 Willoughby Avenue, Suite 303
P.O. Box 111800
Juneau, Alaska 99811-1800
PHONE: (907) 465-5300
FAX: (907) 465-5274
http://www.state.ak.us/DEC/

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
COMMERCIAL PASSENGER VESSEL ENVIRONMENTAL COMPLIANCE PROGRAM

February 28, 2007

Subject: Alaska's Commercial Passenger Vessel Annual Registration and Reporting Large Vessels

Dear Sir or Madam:

Thank you for choosing Alaska as a destination for your vessel.

The Commercial Passenger Vessel Environmental Compliance (CPVEC) Program is established by Alaska Statute (AS) 46.03.460 – 46.03.490 and 18 AAC 69. The Alaska Department of Environmental Conservation (ADEC) Division of Water administers this program, which addresses wastewater discharges, hazardous wastes and solid wastes, and directly monitors air opacity of vessels operating in Alaska waters.

Under the CPVEC program, vessel owners or operators who intend to operate in Alaska marine waters in 2007 are required to submit several documents listed in Table 1.

In an effort to reduce paper consumption, ADEC will NOT send hardcopies of the registration documents via certified mail to the 2006 vessel contacts as we have done in the past. The 2007 registration includes an on-line registration system; the on-line registration allows vessel owners or operators to attach the support documentation. Please note that the ADEC website at http://www.dec.state.ak.us/water/cruise_ships/07reg/CPVEC_reg_step_by_step.pdf includes a complete (printable) set of instructions "2007 Registration Step by Step".

The only document the vessel owner or operator must send through the mail is the original notarized vessel owner or operator's signature page.

The 2007 on-line registration includes per voyage[1] fee requirements for:

- The Environmental Compliance Fee for commercial passenger vessels pursuant A.S. 46.03.480; and
- The Ocean Ranger Fee for large commercial passenger vessels ($4 per berth) pursuant to 46.03.476 and AS 46.03.480(d)

Please note that for the 2007 season ADEC will accept registrations till March 31, 2007.

As you may be aware, ADEC is developing program changes to implement Ballot Measure 2 (the "Cruise Ship Initiative"), including development of wastewater discharge permits and an Ocean Rangers program. Vessels that discharge wastewater in Alaska this season may need to submit additional information to ADEC for authorization under a new general permit for large commercial passenger vessels. ADEC intends to issue a general permit this cruise season. Opportunity for public comment will be included in the review of the draft permit. Other forums for public comment on the Ocean Ranger program are planned as ADEC proceeds with ballot measure implementation.

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[1] A voyage is defined as "vessel trip to or form one or more ports of call in the state with the majority of passengers for hire completing the entire vessel trip; a vessel trip involving stops at more than one port of call is considered a single voyage so long as the majority of passengers for hire complete the entire trip." (AS 46.03.490(17))

Documents are available both in PDF and WORD versions, and are available at the ADEC website http://www.dec.state.ak.us/water/cruise_ships/07regletter.htm or upon request.

Table 1. Schedule and Description of CPVEC Requirements

Document	Authority	Due Date [2]
Registration	AS 46.03.461, 18 AAC 69.010	March 31, 2007
Quality Assurance/ Quality Control Plan (QAQCP)	AS 46.03.465(b), 18 AAC 69.025	March 31, 2007
Non-hazardous Solid Waste Offloading and Disposal Plan	AS 46.03.475(e)(1), 18 AAC 69.035	March 31, 2007
Hazardous Waste and Substance Offloading Plan	AS 46.03.475(e)(2), 18 AAC 69.040	March 31, 2007
Environmental Compliance Fee	AS 46.03.480, 18 AAC 69.015	June 1, 2007
Vessel Specific Sampling Plan (VSSP)	18 AAC 69.030	21 days before sampling as required under AS 46.03.465

Vessel owners/operators discharging wastewater into the marine waters of the state[3] are required to take and pay for at least two wastewater samples in accordance with an ADEC-approved technique (QAQCP). Vessel owners or operators can use the 2007 Northwest Cruise Ship Association (NWCA) Quality Assurance/Quality Control Plan available at http://www.state.ak.us/dec/water/cruise_ships/industrylinks.htm or submit their own QAQCP for ADEC approval. Owners or operators following the 2007 NWCA QAQCP must contact Analytica Alaska directly at (907) 780-6668 to arrange sampling for the 2007 season.

ADEC is authorized to take additional wastewater samples, but these samples do not count toward the two required samples. It is imperative that the samples are taken *while the vessel is discharging*. A copy of the discharge log will be required for the day that the sample was taken.

Please submit all CPVEC correspondence, support documents, and reports to:

Mr. Albert Faure

Commercial Passenger Vessel Environmental Compliance Program

Alaska Department of Environmental Conservation

410 Willoughby Avenue, Suite 303

P.O. Box 111800

Juneau, AK 99811-1800

albert_faure@dec.state.ak.us

[2] For the 2007 Season only ADEC will accept registrations until March 31, 2007.

[3] Marine waters of the state are generally defined as three nautical miles from coast and all waters of the Alexander Archipelago (Inside Passage). For specific latitude and longitude, see Alaska statute 46.03.490.

Other documents included with this letter contain pertinent information for vessels operating in Alaska. For example, attached is information on Alaska's marine emission standard and a document describing ADEC Spill Prevention and Response's program to prevent oil spills from non-tank vessels including the required Alaska Certificate of Financial Responsibility (COFR) and Contingency Plan (C-Plan) information and application. Also included with this letter a list of URL links to useful state websites.

Please feel free to contact me at (907) 465-5279 or by e-mail to discuss CPVEC program requirements.

We appreciate your cooperation and willingness to work with us in the past and look forward to working with you during 2007.

Sincerely,

Albert Faure
Program Engineer

Attachments: 2007 On-line registration "2007 registration Step by Step"
Useful State Websites
Support Documents:
Description of Required Plans
2007 Vessel Specific Sampling Plan Form
Alaska Opacity and Excess Emissions Regulations
Marine Vessel Excess Emission Notification Form
COFR and C-Plan Requirements

Useful State websites

Wastewater

The CPVEC program
http://www.state.ak.us/dec/water/cruise_ships/index.htm

Pay special attention to the owner and operator page
http://www.state.ak.us/dec/water/cruise_ships/industrylinks.htm

2007 Cruise Ship Registration Step by Step
http://www.dec.state.ak.us/water/cruise_ships/07reg/CPVEC_reg_step_by_step.pdf

Alaska Statute (46.03.460- 46.03.490)
http://www.legis.state.ak.us/cgi-bin/folioisa.dll/stattx02/query=[group+title46]/doc/{@61}/hits_only?

CPVEC program regulations (18 AAC 69)
http://www.legis.state.ak.us/cgi-bin/folioisa.dll/aac/query=%5Bgroup+title18chap69!3A%5D/doc/%7B@1%7D/hits_only?

Visible Emissions (Opacity Requirements)

Air Quality regulations 18 AAC 50

http://www.state.ak.us/dec/water/cruise_ships/Law%20and%20Regs/lawregs.htm

Cruise Ship Excess Emission Form under Cruise Ship Excess Emissions Self Report

http://www.state.ak.us/dec/water/cruise_ships/industrylinks.htm

Oil Spill Prevention Requirements (COFR and C-Plan)

Non-tank Vessel Certificate of Financial Responsibility (COFR) program and Contingency Plan (C-Plan) information can be found at the following websites:

COFR INFO:

http://www.state.ak.us/dec/spar/ipp/fr_nontank.htm, and

A blank Alaska COFR application form is available on-line at:

http://www.state.ak.us/dec/spar/ipp/fr&pi.htm#forms
See: Non-tank Vessel Financial Responsibility Application (PDF 103K)

C-Plan INFO:

http://www.state.ak.us/dec/spar/ipp/nontank.htm

A blank Alaska C-Plan application form is available on-line at:
http://www.state.ak.us/dec/spar/ipp/docs/revdocs/nteqapp.pdf

Instruction Sheet
http://www.state.ak.us/dec/spar/ipp/docs/revdocs/ntvslinst.pdf

Alaska Statute 46.04.055, covering non-tank vessel financial responsibility and c-plans can be found at the following website:

http://touchngo.com/lglcntr/akstats/Statutes/Title46/Chapter04/Section055.htm

Financial Responsibility regulations 18 AAC 75 Article 2 can be found at the following website:

Beginning on pg. 19 of: http://www.state.ak.us/dec/regulations/pdfs/75mas.pdf

Alaska's Requirements for Non-tank Vessels Certificate of Financial Responsibility (COFR) and Contingency Plans (C-Plans)

Alaska law requires owners and operators of non-tank vessels over 400 Gross Registered Tons to submit an application form and proof of financial responsibility in order to be awarded an Alaska Certificate of Financial Responsibility (COFR). This proof shows ADEC that the owner or operator has sufficient funds to clean up an oil spill from their vessel, should one occur. ADEC must also approve a non-tank vessel Oil Discharge Prevention and Contingency Plan, which demonstrates that resources and personnel will be availabl to clean up a spill.

COFR INFO: http://www.dec.state.ak.us/spar/ipp/fr&pi.htm

A blank Alaska COFR application form is available online:
http://www.dec.state.ak.us/spar/ipp/docs/ntapplic.pdf

1) Companies with vessels not currently holding a valid Alaska COFR will need to send a completed and notarized new application form (download it from the website above) and proof of financial responsibility, such as a Certificate of Entry from a P&I Club for the 2006-2007 P&I year, so that the package arrives in the ADEC office below at least 15 days prior to the vessel's entry into Alaska waters.

2) Companies with vessels currently holding a valid, unexpired Alaska COFR are requested to apply 30 days prior to the COFR's expiration date, and at a minimum 15 days prior to arrival in Alaska waters.

3) Alaska regulations do not allow deductibles (aggregate or otherwise) over $50,000 on your P&I. Please check your terms and ensure you are in compliance prior to sending your application.

You are encouraged to send applications by fax or email prior to sending the hard copy - this will allow us to review your application and get back to you if there are any problems, before you commit the notarized original to a courier service.

Point of Contact for COFRs:

(Ms.) Clare Pavia
Financial Responsibility Program
Alaska Department of Environmental Conservation
Division of Spill Prevention and Response
P. O. Box 111800
Juneau, AK 99811-1800
United States of America
Tel: +1 907 465 5283
Fax: +1 907 465 5245
email: Clare_Pavia@dec.state.ak.us

C-Plan INFO: http://www.dec.state.ak.us/spar/ipp/marine.htm

A blank Alaska Streamlined C-Plan application form is available online:
http://www.dec.state.ak.us/spar/ipp/docs/revdocs/ntvslapp.pdf
Instruction Sheet:
http://www.dec.state.ak.us/spar/ipp/docs/revdocs/ntvslinst.pdf

1) A Streamlined C-Plan application must be submitted at least 5 days before a vessel enters state waters (we recommend a longer lead time). An operator must contract cleanup and incident management services for the plan and may hire a Response Planning Facilitator (RPF) to secure response contracts, prepare the C-Plan application, and submit it for approval. Please contact the Marine Vessels office for a list of approved RPFs and/or response contractors.

2) Plan approvals are generally valid for 5 years, however, most response contracts must be renewed annually. Please check the approval status of existing plans at the beginning of each year.

For more C-Plan information, please contact Rosanna Dickens:
Marine Vessels Section
Department of Environmental Conservation
Division of Spill Prevention and Response
555 Cordova St.
Anchorage, AK 99501
Tel +1 907 269 7681
Fax +1 907 269 8403
email: Rosanna_Dickens@dec.state.ak.us

Vessel Specific Sampling Plan (VSSP) Rev: **2007 Season**

Vessel Specific Sampling Plan M/V

The sampler will use the VSSP as a guide to identify the specific onboard locations to be sampled. To satisfy the VSSP requirement, you may fill in the blanks in this form starting on page 2 or you may submit an existing updated VSSP if it contains the components listed in 18 AAC 69.030(b).

Please note that ADEC will not approve sampling locations that are more than 50 feet from the overboard discharge port. Samples taken in 2003 indicate that samples taken directly after the ultraviolet disinfection unit were not of the same quality as samples taken at the overboard discharge pipe.

The two wastewater samples that are taken to satisfy the state requirements must reflect the quality of the effluent that is being discharged into Alaska waters during standard operating procedures. Only ships that discharge continuously may take the two samples for the state program. In port. vessels that have obtained continuous discharge certification from the U.S. Coast Guard but choose not to discharge in port as part of their standard operating procedures, must sample while the vessel is underway.

If you have questions concerning the components of the VSSP, please contact Albert Faure (907-465-5279 or by email albert_faure@dec.state.ak.us

Table on this page is for ADEC use only.

☐	**ADEC approved as written on** _____/
☐	**ADEC approved with the redlined changes on** _____/
☐	**ADEC does not approve, please resubmit** _____/
The plan is missing or insufficient in the following areas:	

Vessel Specific Sampling Plan (VSSP) Rev: 2007 Season

Vessel Name: _____

Facility contact name and info or attach business card.

(Note: Remember to include all units. Example cubic meters, gallons, cubic meters per second.)

Year ship joined fleet		
Gross tonnage		
Passenger capacity(#)/voyage		
Crew capacity(#)/voyage		
MSD system (USCG type)		
Number of MSD units		
Other water treatment units (type & capacity)		
Blackwater treatment (type & capacity)		
Treated blackwater holding tank capacity & location (holding capacity includes double bottom tanks)		
Graywater treatment (type & capacity)		
Graywater collection tank capacity & location		
Graywater holding tanks capacity & location		
Mixed graywater/treated blackwater holding tank capacity & location		
Maximum discharge flow rate per discharge port [1] and discharge pump type		
Average discharge flow rate per discharge port [1] and discharge pump type		
List of overboard discharge ports and location on vessel (Starboard/Port) & discharge line diameter and distance below/above waterline		
Blackwater generation per day		
Graywater generation per day	Accommodations	
	Galley	
	Laundry	
Daily water use/individual		
Seawater usage per day		

[1] The pump(s) rate and discharge line diameter must be given to check the flow rate.

Peak water use per hour	
Hours of peak water use	

Wastewater Treatment

Please provide a description and capacity of the wastewater treatment system(s) on this vessel:

Discharges

Please provide the individual vessel rules or procedures for discharging wastewater.

Wastewater Samples To Be Analyzed For Conventional Pollutants At Least Twice Per Season

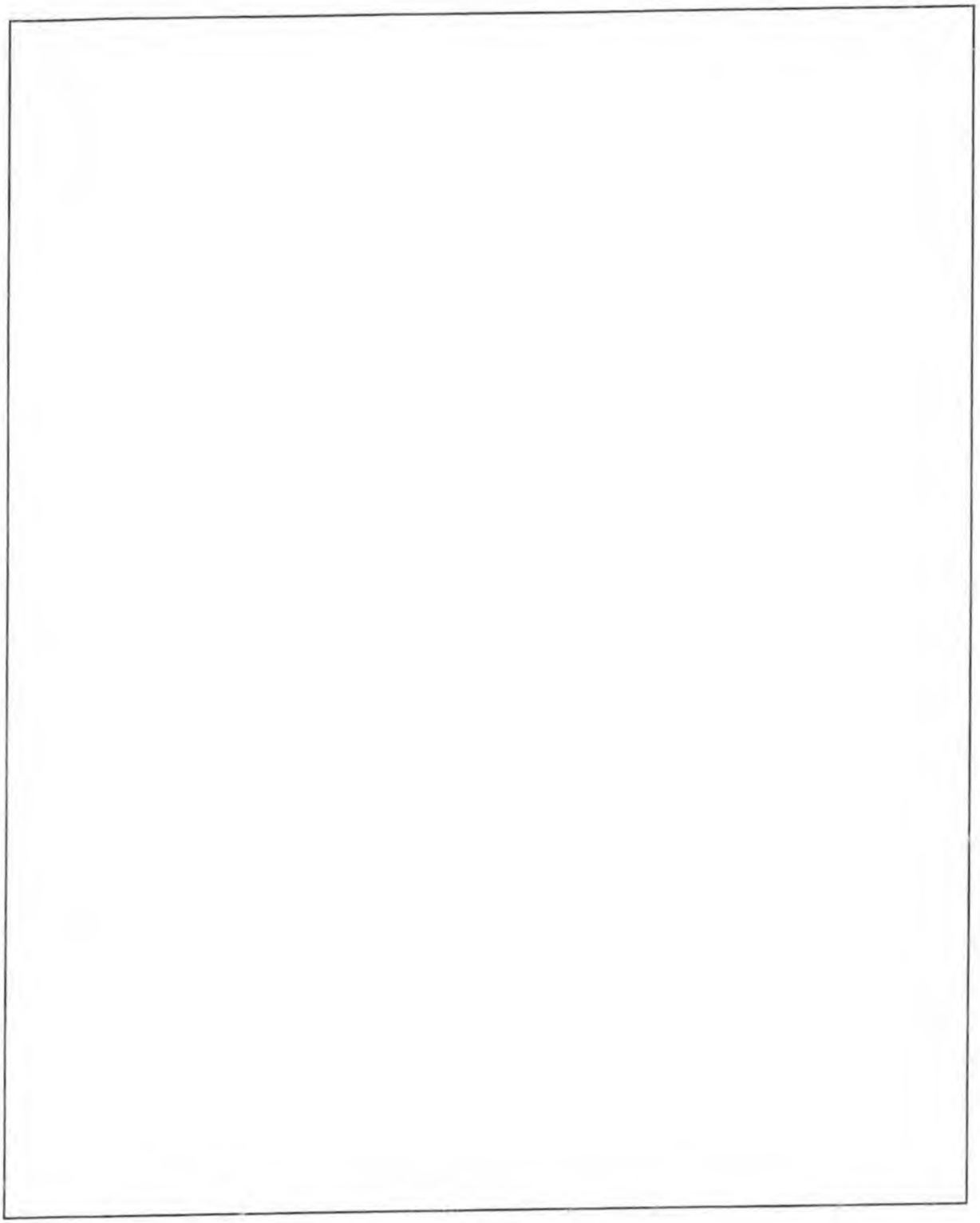
Please describe the vessel's sample port location(s), where the sampling should occur (in port or underway) and the time of day that the sampling should take place. The owner/operator needs to explain why these selected sampling sites and times give the most representative sample. The sample selection should be adequately mixed and homogenous. All samples need to be taken from wastewater as it is discharging overboard, unless deemed impractical by ADEC.

Wastewater Samples To Be Analyzed For Priority Pollutants Once Per Season

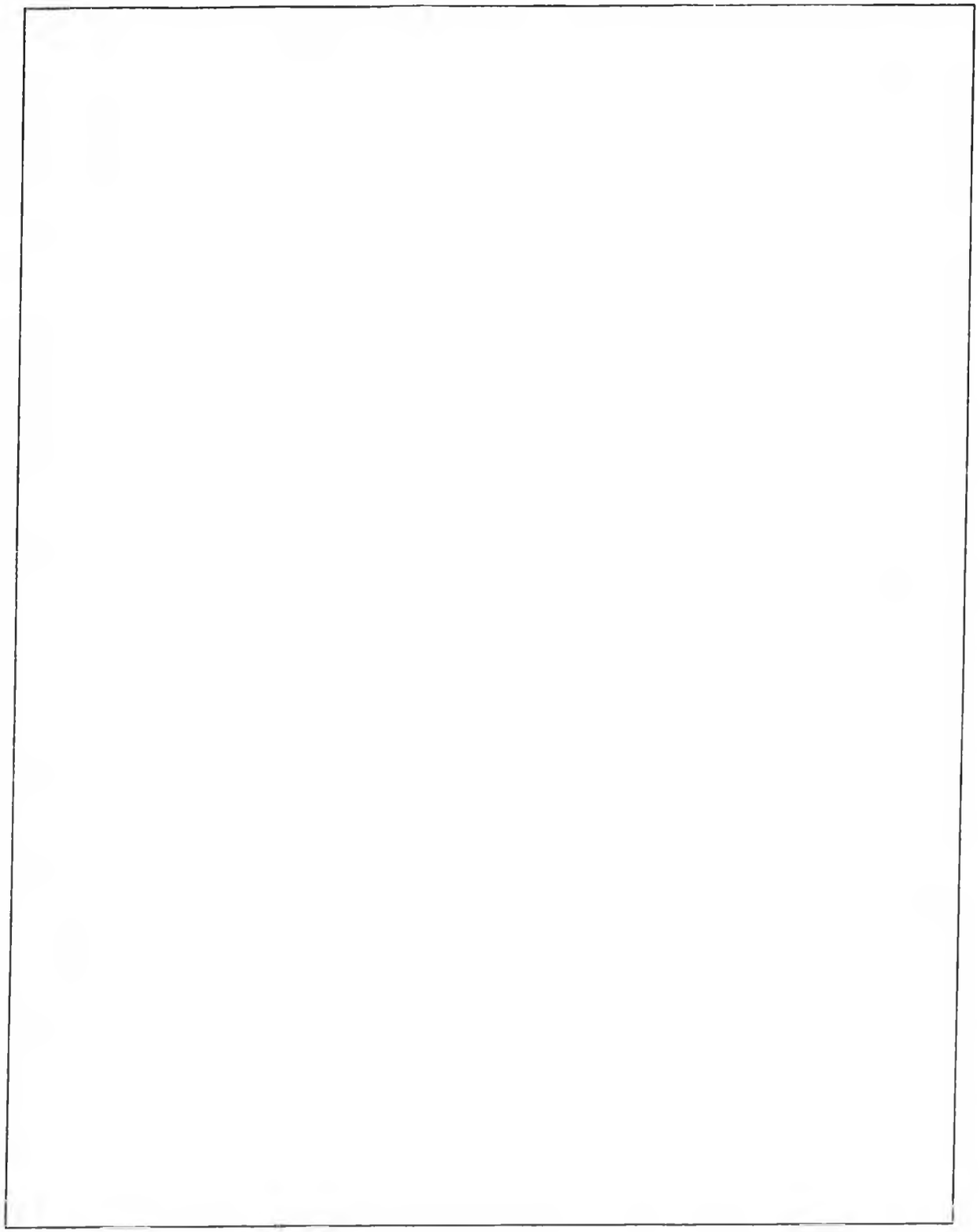
See description for conventional pollutants above.

Description of the standards the owner or operator will use to determine a deviation from the plan.

Attach sketch of vessel with treatment system, tanks, discharge pumps, discharge lines, sampling locations, and overboard ports.



Attach sketch of vessel with treatment system, tanks, discharge pumps, discharge lines, sampling locations, and overboard ports.



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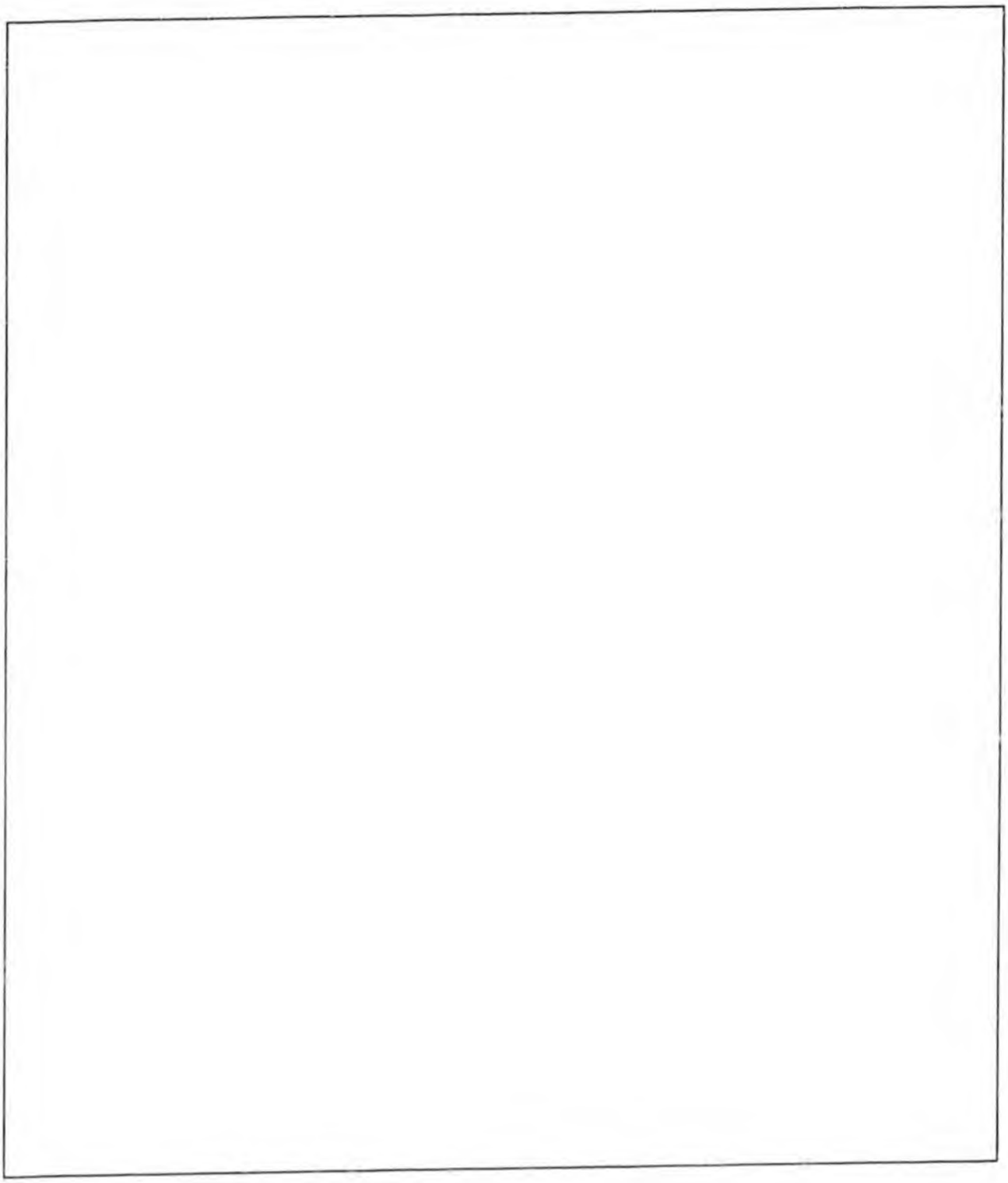


Regulated Conventional Pollutants

Wastewater	Sample Type	Parameters[2]	Bottles (preserved with)	Sample Location	Time & Dates Of ALL Appropriate Sample
Graywater (GW) AND Blackwater (BW)	Grab	BOD, TSS, pH*, EC Alkalinity	1 liter HDPE		
		Chlorine Residual*	From BOD, ASAP in field		
		COD, NH3, N2NO3 Total Phosphorus	250 ml HDPE (H_2SO_4)		
		TKN	500 ml HDPE (H_2SO_4)		
		Total Organic Carbon	2 40-ml VOC vials (H_2SO_4)		
		Settleable Solids	1 liter HDPE		
		Oil and grease	1 liter glass (H_2SO_4)		
		Fecal Coliforms	100 ml sterile plastic (Sodium Thiosulfate)		

**pH, free and total chlorine residuals will be field tested by the sampler while on the ship*

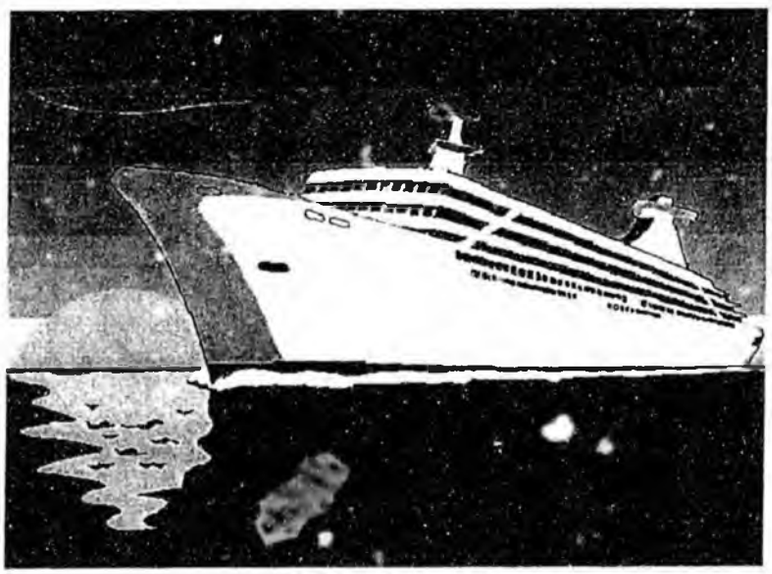
Priority Pollutants

Wastewater	Sample Type	Parameters[3]	Bottles (preserved with)	Sample Location	Time & Dates Of ALL Appropriate Sample
Graywater (GW) AND Blackwater (BW)	Grab	BNA	1 L amber (unpreserved)		
		VOCs	40 mL VOA x2 (HCl)		
		Total Rec. Metals	500 mL poly (HNO3)		
		Dissolved Metals	500 mL poly (unpreserved)		

[2] Parameters will be finalized in the Quality Assurance/Quality Control Plan.
[3] Parameters will be finalized in the Quality Assurance/Quality Control Plan.

Vessel Sanitation Program Operations Manual

August 2005



U.S. Public Health Service
Centers for Disease Control
and Prevention
National Center for Environmental Health

Department of Health and Human Services
Centers for Disease Control and Prevention
National Center for Environmental Health
Vessel Sanitation Program
Atlanta, GA and Ft Lauderdale, FL

Vessel Sanitation Program
Centers for Disease Control and Prevention
4770 Buford Highway, NE F-23
Atlanta, GA 30341-3724
Phone: (770) 488-7070
Fax: (770) 488-4127
E-mail: vsp@cdc.gov

Vessel Sanitation Program
Centers for Disease Control and Prevention
1850 Eller Drive, Suite 101
Ft Lauderdale, FL 33316-4201
Phone: (800) 323-2132 or (954) 356-6650
Fax: (954) 356-6671
E-mail: vsp@cdc.gov

The *VSP Operations Manual* and updates are available at www.cdc.gov/nceh/vsp.

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, re-inspection.

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 re-inspections. 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 personr

In 1998, it became apparent that is was time to update the 1989 version of the *VSP O ations Manual*. Changes in the FDA *Food Code*, new science on food safety and protection, and new 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 ad ess 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.

David Forney
Vessel Sanitation Program

Table of Contents

INFORMATION TO ASSIST THE USER ON THE MANUAL FORMAT

organization

The *Vessel Sanitation Program Operations Manual* is divided into chapters and then sections that focus on each operational area important to safeguarding public health aboard vessels.

keywords

Each of the guidelines is formatted with a keyword or phrase on the left side of the page to assist the user in quickly locating a specific section.

section number

The international numbering system is used to organize the guidelines in this document.

description

The public health compliance recommendation is provided in this statement.

italics

Portions of some sections of these guidelines are written in *italics.* These provisions are not requirements, but are provided to convey relevant information about specific exceptions and alternative means for compliance.

inspection report number

The individual inspection report item number that will be found in violation if this recommendation is not followed is shown to the right of the description.

criticals

Critical compliance items are designated in these guidelines with a **C** to the right of the inspection report number which is also highlighted in red along with the section number.

noncritical items

Noncritical compliance items are the other items in this manual.

1.0 Introduction

1.1 Introduction and Background

1.1.1 Cooperative Activity

history 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.

cooperation 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

inspections 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.

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

1.2.2 Information

training 1.2.2.1 The VSP provides food safety and environmental sanitation training seminars for vessel and shore operations management personnel.

plan review 1.2.2.2 The program provides consultative services for reviewing plans for renovations and new construction.

construction inspections 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.

information 1.2.2.4 The program disseminates information to the public.

1.3 Operations Manual

1.3.1 Revisions

manual 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.

program guidance 1.3.1.2 The program operations and inspections are based on this manual.

periodic review 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

2.1.1 Communicable Disease Prevention

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.

regulation promulgation

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."

inspections

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 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 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 waste from toilets, urinals, medical sinks, and other similar facilities.

"Cross-connection" 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 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 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" 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 in which potable water is stored from bunkering and production for distribution and use as potable water.

"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 vessel'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 2 C (70 °F) to 5 °C (41 °F) within an additional 4 hours.

"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.

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

"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, table linens, 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 microoganisms 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 the 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 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 0.8 mm (1/32 inch) and less than 3 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 renders 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 becomes 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.

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

"Diarrheal Disease" – means 3 or more episodes of loose stools in a 24-hour period or of a greater than normal (for the person) amount of loose stools.

"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.

"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

4.1.1 Reportable Cases

4.1.1.1 Definition

case 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 ≥ 38 °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 misclassifying seasickness (nausea and vomiting) as gastroenteritis.

onset time 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. 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. 02

definition purpose 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.

foreign quarantine regulations 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 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

responsibility 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

cruise information 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

log contents 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.

log details 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.

medications sold or dispensed 4.1.2.1.5 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

food/ beverage questionnaire 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

retention 4.1.2.3.1 The medical log, gastrointestinal illness log 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 02

acceptable and shall also be maintained on the vessel for 12 months.

review 4.1.2.3.2 The gastrointestinal illness surveillance log 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

privacy 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

24-hour report 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 36 hours before the vessel's expected arrival at the U.S. port. 01 C

4-hour update report 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

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.

cruise length 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

2% illness rate 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 the vessel is within 15 days of expected arrival at a U.S. port.

daily report 4.2.2.1.2 Daily reports of illness status shall be submitted as requested by the VSP following the initial submission of a special report. 01 C

routine reporting continues 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

telephone report 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

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

specimen/ shipping containers	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

when to collect	4.3.2.1	When a vessel reaches 2% reportable gastrointestinal illness in either passengers 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
proper packing	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

isolate ill crew

4.4.1.1 a. Symptomatic and meeting the case definition for Acute Gastroenteritis (AGE): 11 C

i. Food Employees

-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.

cabin mates/ contacts

4.4.1.2 b. Asymptomatic cabin mates or immediate contacts of symptomatic crew: 11 C

i. Food and Non-Food Employees:

- Restrict exposure to symptomatic crew member(s);

- Medical or supervisory staff shall conduct a verbal interview with asymptomatic cabin mates and immediate contacts to confirm their condition, advise them of the hygiene and handwashing facts, and to instruct them to report immediately to medical if they develop illness symptoms;

- Medical or supervisory staff shall conduct verbal interviews daily with asymptomatic crew until 48 hours after onset of the ill crew members symptoms began.

4.4.2 Passengers

isolate ill passengers

4.4.2.1 a. Symptomatic and meeting the case definition for AGE: 11 C

- Advised to remain isolated in cabin until well for a minimum of 24 hours after symptom resolution;

- Follow-up by infirmary personnel advised;

- Handwashing tips and personal hygiene information sheet provided by ship.

5.0 Potable Water

5.1 Source

5.1.1 Bunkering

5.1.1.1 Standards

safe source 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. 03 C

5.1.1.2 Sample Reports

water report 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

onboard test 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.*

review 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

polluted harbors

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 areas, harbors, or at anchor. **03** **C**

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

halogen level

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

halogen pre-test

5.2.1.2.1 A free halogen residual and pH test 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

hourly test

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

records

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

analyzer-chart recorders

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

construction	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	
data logger	5.2.1.2.6	*Electronic data loggers with certified data security features may be used in lieu of chart recorders.*		
halogen sample	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	
tank sample	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

potable water tank walls	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
non-potable piping	5.3.1.1.2	Piping systems carrying sewage or other non-potable liquids shall not pass 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	
coatings	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

identification	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	
sample valves	5.3.1.2.2	Potable water tanks shall have sample valves which are turned down.	08	
vent/overflow	5.3.1.2.3	The potable water tank or combined vent and overflow	08	

shall be protected from contamination.

level measurement	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	
manual sounding	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**		
identification	5.3.2.1.1	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	
protection	**5.3.2.1.2**	Potable water piping shall not pass under or through sewage or other tanks holding non-potable liquids.	**07**	**C**
bunker connection	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 460 mm (18 inches) above the bunker station deck.	08	
cap/keeper chain	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	
identification	5.3.2.1.5	Each bunker station potable water filling line shall be painted 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	
non-potable fresh water	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	
different piping	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

fittings	5.3.3.1.1	Potable water hoses shall have unique fittings from all other hose fittings on the vesse'	08
identification	5.3.3.1.2	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
construction	5.3.3.1.3	All hoses, fittings, water filters, and appurtences used for connection with the bunkering of potable water shall be constructed of safe, easily cleanable materials.	08
good repair	5.3.3.1.4	All hoses, fittings, water filters, and appurtences used for connection with the bunkering of potable water shall be maintained in good repair.	08
locker construction	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
locker identification	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
locker height	5.3.3.1.7	The potable water hose lockers shall be mounted at least 460 mm (18 inches) above the deck and shall be self-draining.	08
locker closed	5.3.3.1.8	The locker doors shall be closed when not removing hoses and equipment.	08
locker restriction	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

limit use	5.3.3.2.1	Potable water hoses shall not be used for any other purpose.	08
handling	5.3.3.2.2	All hoses, fittings, water filters, buckets, and appurtences used for connection with the bunkering of potable water shall be handled and stored in a sanitary manner.	08

contamination prevention	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	
flush/drain	5.3.3.2.4	Potable water hoses shall be flushed before being used and shall be drained after each use.	08	
storage	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**		
disinfecting	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: (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.	07	C
annual inspection	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	
record retention	5.3.4.1.3	Documentation of the inspection, maintenance, cleaning, disinfection (to include concentration and contact time of disinfectant), and flushing shall be maintained for 12 months and shall be available to the VSP for review during inspections.	08	
disinfection residual	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

emergencies	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 200 mg/L (ppm) throughout the affected area.*	
flush	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
alternative method	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: (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) before placing the tank back into service.	08

5.4 Potable Water System Halogenation

5.4.1 Halogenation Devices

construction

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

residual

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

controlled

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

backup pump

5.4.1.2.3 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

distant point

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

data logger

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**		
maintenance	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	
calibration	5.5.1.2.2	The daily, manual comparison test or calibration shall be recorded either on the recorder chart or in a log book.	06	
accuracy	**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**
test kit	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**		
range	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	
data logger	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**		
charts	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	
retention	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	

chart review	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**	
every 4 hours	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
recording	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
limit	5.5.3.1.3	Repairs on malfunctioning halogen analyzer-chart recorders shall be completed within 10 days of equipment failure.	06
low level alarm	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

samples	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 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	
analysis	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

records	5.6.1.2.1	Sample results shall be maintained onboard the vessel 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

cross-connections	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
protection	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

control/ program 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.

log 5.7.1.1.4 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. 08

5.7.1.2 Device Installation

backflow preventers 5.7.1.2.1 Backflow preventers shall be installed when air-gaps are impractical or when water under pressure is required. 08

2X diameter 5.7.1.2.2 Air-gaps shall be at least twice the diameter of the delivery fixture opening and a minimum of 25 mm (1 inch). 08

flood-level rim 5.7.1.2.3 An atmospheric vacuum breaker shall be installed at least 150 mm (6 inches) above the flood-level rim of the fixtures. 08

after valve 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

continuous pressure 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

backflow preventers 5.7.1.2.6 Backflow preventers shall be provided on all fixtures using potable water and which have submerged inlets. 08

vacuum toilets 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

diversion valves	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
location	5.7.1.2.9	Backflow preventers shall be located so they may be inspected, serviced, and maintained.	08
	5.7.1.3	**Air Supply Connections**	
air supply	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
separate compressor	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**	
maintained	5.7.2.1.1	Backflow preventers shall be maintained in good repair.	08
	5.7.2.2	**Inspection and Service**	
schedule	5.7.2.2.1	Backflow prevention devices should be periodically inspected and any failed units shall be replaced.	08
RP annually	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
records	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

6.1.1 Operation

6.1.1.1 At Sea

12 miles	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

drained	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	
switched to recirculation	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	
1.0 mg/L (ppm)	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

filtered	6.2.1.1.1	Recirculated swimming pool water shall be filtered.	10	
backwashed	6.2.1.1.2	Filter pressure differential shall be monitored. A 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	
media	6.2.1.1.3	Filter media shall be examined and changed as recommended by the manufacturer.	10	

gauges	6.2.1.1.4	Swimming pool filter pressure gauges and valves shall be replaced when they are defective.	10	
manuals	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**		
water chemistry	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	
fecal accident	6.2.1.2.2	A fecal accident response procedure which meets or exceeds the procedure provided in annex 13.11 shall be documented and available to the VSP for review during inspections.	10	
record of fecal accidents	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**		
residual	6.2.2.1.1	A free residual halogen of ≥ 1.0 and ≤ 5.0 mg/L (ppm) shall be maintained in recirculated swimming pools.	09	C
maintenance	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**		
test kit	6.2.2.2.1	A halogen test kit shall be provided and used.	10	
testing	6.2.2.2.2	Residual halogen logs shall be maintained with residuals measured and recorded every 4 hours during operation.	10	
analyzer-chart recorder	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	
data logger	6.2.2.2.4	*Electronic data loggers with certified data security features may be used in lieu of chart recorders.*		

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

filtration	6.3.1.1.1	Whirlpool spa water shall be filtered.	10
replacement	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
inspection	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
backwash	6.3.1.1.4	Granular filters shall be backwashed at least daily. Backwashing shall be repeated until the water viewed through the sight glass or discharge point is clean flowing.	10
examination and core sample	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. *One acceptable method is to draw water down to the media surface and inspect the granular filter 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.*	10
replacement	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	10

		before the new filter media is placed in it.		
maintenance	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 such as filters, pumps, and halogenation equipment shall be maintained aboard the vessel in a location that is known by and is accessible to crew members who are responsible for the whirlpool spa's operations and maintenance.	10	
	6.3.1.2	**Water Quality**		
changed	6.3.1.2.1	The whirlpool spa water shall be changed daily.	10	
pH	6.3.1.2.2	The whirlpool spa water shall be maintained with a pH between 7.2 and 7.8.	10	
fecal accident	6.3.1.2.3	A fecal accident response procedure which meets or exceeds the procedure provided in annex 13.11 shall be documented and available to the VSP for review during inspections.	10	
record of fecal accidents	6.3.1.2.4	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	
	6.3.2	**Halogenation**		
	6.3.2.1	**Residual Halogen**		
residual	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
shock	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 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. *Whirlpool spas filled with seawater are exempt from this requirement.*	10	
maintenance	6.3.2.1.3	Halogenation systems shall be operated and maintained in good repair in accordance with the manufacturer's recommendations.	10	

records	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**	
test kit	6.3.2.2.1	A halogen test kit shall be provided and used.	10
testing	6.3.2.2.2	Residual halogen logs shall be maintained with residuals measured and recorded hourly during operation.	10
analyzer-chart recorder	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
data logger	6.3.2.2.4	*Electronic data loggers with certified data security features may be used in lieu of chart recorders.*	
charts	6.3.2.3.5	Halogen analyzer-chart recorder charts shall be initialed, dated and changed daily.	10
logs	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
retention	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**	
cleaning	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
maintenance	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**	
cleaning	6.3.4.1.1	Individual hydrotherapy pools shall be cleaned and disinfected, including associated recirculation systems, between customers.	10
maintenance	6.3.4.1.2	Manufacturer's operation and maintenance instructions shall be 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

signs	6.4.1.1.1	Safety signs shall be provided for public swimming pools and whirlpool spas.	10
depth markers	6.4.1.1.2	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
spas	6.4.1.1.3	A sign shall be installed near the whirlpool spas that list standard safety precautions and risks, warning against use by particularly susceptible people, such as those who are immunocompromised.	10

6.4.1.2 Equipment

life saving	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
anti-entrapment drain	6.4.1.2.2	Anti-entrapment drain covers or other drains that prevent entrapment hazards as specified in U.S. Consumer Product Safety Publication 363-009801(dual drains/channel drains) 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
temperature	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**	
diapers	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
	6.4.2	**Spa Pool** *(an independent pool with combined elements of a whirlpool spa)*	
	6.4.2.1	**Maintenance and Operating Standards**	
operation and maintenance	**6.4.2.1.1**	The spa pool halogen shall be operated and maintained according to whirlpool spa standards provided in sections 6.3.1.1.1 - 6.4.1.3.1, 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
spa standards	**6.4.2.1.2**	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

7.0 Food Safety

7.1 Reserved

7.2 Personnel

7.2.1 Food-Safety Management

7.2.1.1 Food-Safety Knowledge

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: 13 C

personal hygiene

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

employee to food disease transmission

(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;

symptoms

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

PHF time/ temperature

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

raw/ undercooked PHF

(5) Explaining the hazards involved in the consumption of raw or undercooked meat, poultry, eggs, and fish;

safe cooking temperatures

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

safe holding temperatures

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

cross-contamination

(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;

equipment and food safety

(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;

cleaning and sanitizing

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

toxic material control

(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

critical-control points

(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

monitoring duties

7.2.1.2.1 The person in charge of the food operations on the vessel shall ensure that: 13 C

separate areas

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

unnecessary persons

(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;

access control

(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;

handwashing

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

receiving

(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;

PHF cooking termperature

(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;

PHF cooling

(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;

consumer advisory

(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;

sanitizing

(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;

clean tableware

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

no bare hand co tact

(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

employee training

(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

communicable diseases 7.2.2.1.1

Food employees suspected of, diagnosed with, or exposed to any communicable disease caused by ***Salmonella* typhi**, ***Shigella*** spp., ***Escherichia coli*** O157:H7, or hepatitis A virus, or other communicable diseases that can be transmitted by food, shall be restricted from working in any food or food related areas or operations, including working with exposed food, warewashing, equipment, utensils, table 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. 11 C

other symptoms 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, table linens, and unwrapped single-service and single-use articles. 11 C

sneeze/cough 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

restrictions removal 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

record of restriction and release 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

hands and arms clean 7.2.3.1.1

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

cleaning procedures	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
when to wash hands	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
after touching		(1) After touching bare human body parts other than clean hands and clean, exposed portions of arms;		
after toilet		(2) After using the toilet room;		
after cough/sneeze		(3) After coughing, sneezing, using a handkerchief or disposable tissue, using tobacco, eating, or drinking;		
after soiled equipment		(4) After handling soiled equipment or utensils;		
changing tasks		(5) During food preparation, as often as necessary to remove soil and contamination and to prevent cross- contamination when changing tasks;		
between raw and RTE		(6) When switching between working with raw food and working with ready-to-eat food; and		
after other contamination		(7) After engaging in other activities that contaminate the hands.		
hand sanitizer	7.2.3.1.4	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.	14	
apply to clean hands	7.2.3.1.5	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.	12	C
	7.2.3.2	**Fingernails**		
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	

fingernail polish/ artificial nails	7.2.3.2.2	*Unless wearing intact gloves in good repair*, a food employee may not wear fingernail polish or artificial fingernails when preparing exposed food.	14	
	7.2.3.3	**Jewelry**		
jewelry	7.2.3.3.1	While preparing food, food employees may not wear jewelry on their arms and hands.	14	
plain ring	7.2.3.3.2	*A plain ring such as a smooth simple wedding band may be allowed to be worn by food employees.*		
	7.2.3.4	**Outer Clothing**		
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**		
eating, drinking, and 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 table linens; unwrapped single-service and single-use articles; or other items needing protection can not result.	12	C
	7.2.4.2	**Hair Restraints**		
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	
counter staff/ wait staff	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

sound condition 7.3.1.1.1 Food shall be safe and unadulterated. 15 C

7.3.2 Food Sources

7.3.2.1 Lawful Sourcing

comply with law 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

food from private home 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

fish for undercooked consumption 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

steaks 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

from processing plants

(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

cut on vessel

(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.

hermetically sealed container 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

milk 7.3.2.1.6 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