Engineering Safety

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If additional weight is placed on the main deck of the vessel shown in the illustration _____. Illustration SF-0023
G will rise

Illustrations: SF0023_WM_100318

The motion of a vessel impacts its stability. Which of these motions shown in the illustration affects the governing "transverse" stability? Illustration SF-0048
Roll

Illustrations: SF0048_WM_100318
See REF037

The motion of a vessel impacts its stability. Which of these motions shown in the illustration affects the governing "motion ahead and astern" stability? Illustration SF-0048
Surge

Illustrations: SF0048_WM_100318
See REF037

The motion of a vessel impacts its stability. Which of these motions shown in the illustration affects the governing "positional motion" stability? Illustration SF-0048
Heave

Illustrations: SF0048_WM_100318
See REF037

The motion of a vessel impacts its stability. Which of these motions shown in the illustration affects the governing "longitudinal" stability? Illustration SF-0048
Pitch

Illustrations: SF0048_WM_100318
See REF037

The motion of a vessel impacts its stability. Which of these motions shown in the illustration affects the governing "directional" stability? Illustration SF-0048
Yaw

Illustrations: SF0048_WM_100318
See REF037

Following cargo loading operations, your vessel is experiencing an excessive at-sea hogging bending stress as shown in the illustration. What should you do to reduce the bending moment? Illustration SF-0047
Add ballast to a mid ships tank.

Illustrations: SF0047_WM_100318

Following cargo loading operations, your vessel is experiencing an excessive at-sea sagging bending stress as shown in the illustration. What should you do to reduce the bending moment? Illustration SF-0047
Add ballast to the fore peak and aft peak tanks.

Illustrations: SF0047_WM_100318

If a vessel initially has no list and no significant trim, which of the developments shown in the illustration will result in the greatest list? Illustration SF-0025
D

Illustrations: SF0025_WM_OLD

The symbol shown in the illustration and used as a reference from which the height of the center of gravity is measured, is item number_____. Illustration SF-0022
2

Illustrations: SF0022_WM_100318

The symbol shown in the illustration and used as a reference from which the height of the center of gravity is measured, is item number_____. Illustration SF-0022
2

Illustrations: SF0022_WM_100318

The symbol shown in the illustration used to represent displacement is _____. Illustration SF-0022
1

Illustrations: SF0022_WM_100318

Symbol #3, shown in the illustration, represents _____. Illustration SF-0022
amidships

Illustrations: SF0022_WM_100318

Symbol number "3" shown in the illustration represents which of the following? Illustration SF-0022
amidships

Illustrations: SF0022_WM_100318

The symbol shown in the illustration and is used as the reference from which transverse measurements are made is _____. Illustration SF-0022
5

Illustrations: SF0022_WM_100318

A three inch overboard discharge line, located six feet below the waterline, has ruptured and separated from the hull. What would be the minimum number of strokes per minute required from a 10" x 8" x 12" duplex double acting reciprocating bilge pump, operating at 96% efficiency, to keep the bilge water level from continuing to rise? Illustration SF-0034
87 strokes per minute

Illustrations: SF0034_WM_100318
See REF2115

On the illustrated fire control plan, what emergency equipment is located in the scullery? Illustration SF-0045
Heat detector

Illustrations: SF0045

You are part of a team to overhaul a fire that was just extinguished in the crew lounge. Where is the nearest fire axe to break apart the furniture? Illustration SF-0045
Starboard side, frame 132

Illustrations: SF0045

You are in compartment "A", shown in the illustration, and suspect a fire in compartment "B". In order to check for and confirm the fire in compartment "B" you should_____. Illustration SF-0005
feel the bulkhead

Illustrations: SF0005_WM_100218
See REF2112

Which of the following statements is true concerning the fire extinguisher shown in the illustration? Illustration SF-0006
The agent may be applied in short bursts by opening and closing the squeeze nozzle piece #1.

Illustrations: SF0006_WM_100318
See REF2109

On the illustrated fire control plan of the lower engine room, the arrow between frames 135 and 140 represents what? Illustration SF-0046
Primary means of escape

Illustrations: SF0046_WM_OLD

You are part of a search team and have been told that the last sighting of the wiper was next to the fire pump(s). What is the location of the fire pump(s)? Illustration SF-0046
Machinery space, port side, frame 131

Illustrations: SF0046_WM_OLD

If there was a fire out of control on the Auxiliary Machinery Flat, what fixed extinguishing system in that space would be the best means to extinguish the fire? Illustration SF-0044
Halon

Illustrations: SF0044_WM_OLD

The component shown in the illustration would be installed in which of the following types of fire detection systems? Illustration SF-0004
Fixed temperature

Illustrations: SF0004_WM_100318

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Fixed temperature

Illustrations: SF0004_WM_100318

If the items shown in the illustration are burning, this fire would be a Class _____. Illustration SF-0001
"A"

Illustrations: SF0001_WM_100218
See REF011

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"A"

Illustrations: SF0001_WM_100218
See REF011

In figure 1 of the illustration, fire would spread to compartment "B" by _____. Illustration SF-0013
conduction

Illustrations: SF0013_WM_100318
See REF016

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conduction

Illustrations: SF0013_WM_100318
See REF016

What is the purpose of opening the doors and portholes in figure 2 of the illustration? Illustration SF-0013
To allow venting of combustion products from the fire to the atmosphere.

Illustrations: SF0013_WM_100318
See REF016

The air flow depicted in figure 1 of the illustration is an example of which type of ventilation? Illustration SF-0013
Combination.

Illustrations: SF0013_WM_100318
See REF016

The air flow depicted in figure 1 of the illustration is an example of which type of ventilation? Illustration SF-0013
Combination.

Illustrations: SF0013_WM_100318
See REF016

A large fire has developed in the HFO centrifuge room accessed by door "E". To combat the fire you should _____. Illustration SF-0013
cool adjoining horizontal and vertical surfaces before opening the door to extinguish the fire

Illustrations: SF0013_WM_100318
See REF016

A person manning a fire hose under pressure with an all-purpose nozzle attached, should be aware that the nozzle is most difficult to control when the handle position is changed from _____.
shut to solid stream

Illustrations: ALLPURPOSENOZZELWM
See REF2083

The fire extinguishing agent dispensed by the unit shown in the illustration is produced by _____. Illustration SF-0020
educting mechanical foam through "D" and mixing it with water and air in chamber "E"

Illustrations: SF0020_WM_100318
See REF2082

As Chief Engineer, how would you instruct a new Third Assistant Engineer to use the fire fighting apparatus illustrated to fight an oil fire at the bunker station? Illustration SF-0020
Direct aqueous film forming foam off the overhead or nearby bulkhead, using a bank down or bounce off method to extinguish the fire.

Illustrations: SF0020_WM_100318
See REF2082

As the senior engineer onboard a vessel, how would you instruct a new engineer to use the firefighting apparatus illustrated to fight an oil fire at the bunker station? Illustration SF-0020
Direct aqueous film forming foam off the overhead or nearby bulkhead, using a bank down or bounce off method to extinguish the fire.

Illustrations: SF0020_WM_100318
See REF2082

The fire extinguishing equipment shown in the illustration is a large _____. Illustration SF-0009
dry chemical hose reel system

Illustrations: SF0009_WM_100318

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Illustrations: SF0009_WM_100318

To operate a carbon dioxide extinguisher having the type of head shown in the illustration, you would _____. Illustration SF-0008
pull pin and open valve

Illustrations: SF0008_WM_100318

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Which of the following statement is true concerning the meter shown in the illustration? Illustration SF-0003
As gas samples are drawn into the instrument they are burned within the case.

Illustrations: SF0003_WM_100218
See REF2077

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As gas samples are drawn into the instrument they are burned within the case.

Illustrations: SF0003_WM_100218
See REF2077

The instrument shown in the illustration has not been used for several weeks. Prior to its use for testing a compartment, you should _____. Illustration SF-0003
check or renew the batteries
purge the meter
adjust the meter pointer to zero
All of the above.

Illustrations: SF0003_WM_100218
See REF2077

During the annual servicing of your ship's fixed CO2 system, you receive the report shown in the illustration. Which CO2 cylinders require recharging? Illustration SF-0014
103 and 108

Illustrations: SF0014_WM_OLD
See REF2070

In the illustration shown, the sea painter is identified as item number_____. Illustration SF-0043
7

Illustrations: SF0043_WM_100318

In the illustration shown, the sea painter is identified as item number_____. Illustration SF-0043
7

Illustrations: SF0043_WM_100318

The equipment shown in the illustration is a _____. Illustration SF-0012
canister-type gas mask

Illustrations: SF0012_WM_OLD

The wooden shoring shown in the illustration is bearing against the hatch coaming and is supporting a load in the direction indicated by the arrows. Which of the following statements is correct for the this condition? Illustration SF-0018
Shore "B" will support the load without it cracking.

Illustrations: SF0018_WM_100318

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Illustrations: SF0018_WM_100318

Which of the methods shown in the illustration is the correct way to fit shoring? Illustration SF-0016
A

Illustrations: SF0016_WM_100318

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Illustrations: SF0016_WM_100318

Using a sea anchor when in a life raft will _____.
reduce the drift rate of the life raft

Illustrations: SEAANCHOR
See REF116

Using a sea anchor with the survival craft will _____.
reduce your drift rate

Illustrations: SEAANCHOR
See REF116

Using a sea anchor with the survival craft will _____.
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Illustrations: SEAANCHOR
See REF116

Using a sea anchor when in a life raft will _____.
reduce the drift rate of the life raft

Illustrations: SEAANCHOR
See REF116

The center of volume of the immersed portion of the vessel is the _____.
center of buoyancy

Illustrations: STABILITYDIAGRAM1, STABILITYDIAGRAM2, STABILITYFORMULAS
See REF133

Stability is determined principally by the relationship of the center of gravity and the _____.
center of buoyancy

Illustrations: STABILITYDIAGRAM1, STABILITYDIAGRAM2, STABILITYFORMULAS

See REF133

The center of volume of the immersed portion of the vessel is the _____.
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Illustrations: STABILITYDIAGRAM1, STABILITYDIAGRAM2, STABILITYFORMULAS
See REF133

You are being directed to a fire in the lower engine room, portside, frame 127. What machinery is found in that exact location? Illustration D038SA
Bilge pumps

Illustrations: D038SA_WM_110218

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See REF133

When lowering lifeboats as the vessel is pitching in heavy seas, a good practice is to rig frapping lines _____.
fore and aft with a lead of about 45° to the boat

Illustrations: D016SA_WM_110818
See REF105

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Illustrations: D016SA_WM_110818
See REF105

As Chief Engineer or First Assistant Engineer you should be familiar with the six motions of a vessel. Which of these motions affects the governing "transverse" stability?
Roll

Illustrations: PITCH_ROLL_YAW
See REF037

Pitching is the rising and falling motion of the bow of a ship oscillating about which axis?
Transverse

Illustrations: PITCH_ROLL_YAW
See REF037

As Chief Engineer or First Assistant Engineer you should be familiar with the six motions of a vessel. Which of these motions affects the governing "positional motion" stability?
Heave

Illustrations: PITCH_ROLL_YAW
See REF037

Yawing is the angular motion of the vessel about what axis?
Vertical

Illustrations: PITCH_ROLL_YAW
See REF037

As Chief Engineer or First Assistant Engineer you should be familiar with the six motions of a vessel. Which of these motions affects the governing "longitudinal" stability?
Pitch

Illustrations: PITCH_ROLL_YAW
See REF037

The horizontal port or starboard movement of a vessel is called _____.
sway

Illustrations: PITCH_ROLL_YAW
See REF037

The horizontal fore-and-aft movement of a vessel is called _____.
surge

Illustrations: PITCH_ROLL_YAW
See REF037

As Chief Engineer or First Assistant Engineer you should be familiar with the six motions of a vessel. Which of these motions affects the governing "lateral motion" stability?
Sway

Illustrations: PITCH_ROLL_YAW

See REF037

The vertical motion of a floating vessel is known as _____.
heave

Illustrations: PITCH_ROLL_YAW
See REF037

As Chief Engineer or First Assistant Engineer you should be familiar with the six motions of a vessel. Which of these motions affects the governing "motion ahead and astern" stability?
Surge

Illustrations: PITCH_ROLL_YAW
See REF037

The angular movement of a vessel about a horizontal line drawn from its bow to its stern is _____.
rolling

Illustrations: PITCH_ROLL_YAW
See REF037

Pitching is the rising and falling motion of the bow of a ship oscillating about which axis?
Transverse

Illustrations: PITCH_ROLL_YAW
See REF037

If you see an individual fall overboard, you should _____.
throw a life ring overboard
hail 'Man Overboard'
pass the word to the bridge
All of the above.

Illustrations: WILLIAMSON_TURN, ANDERSON_TURN, SCHARNOW_TURN
See REF020

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pass the word to the bridge
All of the above.

Illustrations: WILLIAMSON_TURN, ANDERSON_TURN, SCHARNOW_TURN
See REF020

Which of the following shoring materials is used to tightly make up the difference in length of a shore cut slightly shorter than the measured distance for required length and must be frequently checked for tightness?
Wedge

A flat block placed under the end of a shore for the purpose of distributing pressure is referred to as a _____.
shole
See REF1993

Which unit will provide excellent mobility to the wearer in an unsafe atmosphere and provide oxygen to sustain life?
A self-contained breathing apparatus
See REF1994

The sea painter on a rescue boat should be led _____.
forward and outside of all obstructions
See REF365

The air spaces in the floor of an inflatable raft will provide protection against _____.
warm water temperatures
cold water temperatures
tears in the outside skin of bottom of the raft
All of the above.

Who is responsible for lowering the survival craft?
Helmsman

The bypass valve on a self-contained breathing apparatus (SCBA) bypasses _____.
the regulator in an emergency
See REF539

Which of the following statements is true regarding oxygen indicators?
Prolonged exposure to gases such as CO2 may affect the accuracy of the indicator.
See REF157

Which of the petroleum products listed has a flash point below 150°F?
Light fuel oils

If, in a compartment or space, the gas or oxygen content is not within permissible concentration, and dangerous gases are either present, or may be produced by residues, what would be the safety designation listed on a marine chemist's certificate?
Not Safe for Men -Not Safe for Fire

The highest concentration of a harmful substance to which a person may be exposed without danger to health, is termed the _____.
threshold limit value
See REF2000

An LNG carrier has an approved type of gas detecting system to detect methane leaks in the _____.
cargo handling rooms
barrier spaces
boiler burner supply piping
All of the above.

When discharging clean ballast, prior to entering the loading port, if the ballast is determined by the oil monitor to exceed 15 parts per million of oil, the deballasting must _____.
be terminated automatically

The most critical part of the bunkering operations, which can result in an oil spill, is when the _____.
tanks are being topped off
See REF2016

U.S. flag ships may obtain an Oil Record Book from the _____.
Local MSO/COTPs/MIO's
See REF609

Bottom mounted crude oil washing machines are primarily used for _____.
areas where direct impingement from deck mounted machines cannot be satisfactorily reached
See REF2023

The device used for preventing the passage of flames into enclosed spaces is called a _____.
flame arrester

The empty weight of a '100 pound' cylinder in a fixed CO2 fire extinguishing system is 130 pounds. What is the minimum acceptable weight of the cylinder before recharging would be required?
220 lbs
See REF2032

According to Pollution Prevention Regulations (33 CFR), the "Discharge of Oil Prohibited" placard is required on all _____.
U.S. Vessels 26 feet or more in length
See REF428

On U.S. inspected ships, oily water separating equipment, bilge alarms, and bilge monitors must be approved under _____.
46 CFR 162

See REF2048

Which of the following is NOT a MARPOL, Annex V, Special Area?
Great Lakes

What Coast Guard Regulations apply to the equipment of a fireman's outfit?
The helmet shall provide effective protection against impact.

Coast Guard Regulations (46 CFR), require a fixed foam extinguishing system on cargo and miscellaneous vessels to meet which of the following requirements?
The supply of foam producing materials must be sufficient to operate the equipment for at least 3 minutes for spaces other than tanks.
See REF2072

Bilges may be pumped _____.
overboard through an oily water separator
See REF2049

An oceangoing ship of 6000 gross tons or above must be fitted with a standard discharge shore connection with dimensions outlined in Pollution Prevention Regulations (33 CFR) or be substituted with a _____.
portable adapter that meets the same specification outlined in 33 CFR, Subchapter "O"

Among other restrictions, an oil tanker may not discharge an oily mixture into the sea from a cargo tank, slop tank, or cargo pump room bilge unless the vessel is _____.
discharging at an instantaneous rate of oil content not exceeding 30 liters per nautical mile

Kapok lifejackets require proper care and should NOT be _____.
stowed near open flame or where smoking is permitted
used as seats, pillows, or foot rests
left on open decks
All of the above.
See REF412

In order to retrieve an inflatable life raft and place it on deck, you should heave on the _____.
towing bridle

As Chief Engineer on a vessel of more than 1600 gross tons on an international voyage, you and the First Engineer are planning a welding job in the cargo hold. How would you ensure that all safety precautions are reviewed prior to starting this job?
Have the First Engineer complete a Hot Work permit prior to starting the job.

If the overflow tank high-level alarm sounds while the fuel oil tanks are being topped off, the engineer should _____.
stop the fuel oil pumping operation

The most common type of containment device for spilled oil on the water is the use of _____.
booms
See REF2059

Pressure-vacuum relief valves on tank vessel cargo tanks should be kept in good working order to prevent _____.
damage to tank boundaries

A hand portable CO2 fire extinguisher is effective on burning oil only _____.
if applied promptly

An extinguishing agent which effectively cools, dilutes combustible vapors and provides a heat and smoke screen is _____.
water fog

As a firefighting medium, CO2 can be dangerous under certain conditions as it can cause _____.
freeze burns and blistering
See REF2086

The upper explosive limit (UEL) of a mixture of flammable vapors and air is defined as _____.
that concentration above which the mixture is too rich to burn
See REF170

Which of the fire extinguishing agents listed can be used to effectively combat a class "B" fire?
All of the above
See REF121

"Dry Powder" fire extinguishers, which contain a mixture of graphite and sodium chloride as the extinguishing agent, are generally used to fight which type of fire?
Class D

The Muster List ("Station Bill") shows each crew lifeboat station, their duties during abandonment, basic instructions, and _____.
all emergency signals
See REF2095

The MOST important element in administering CPR is _____.
starting the treatment quickly
See REF2098

When administering mouth to mouth rescue breathing to an adult, you should breathe at the rate of how many breaths per minute?
12

In all but the most severe cases, bleeding from a wound should be controlled by _____.
applying direct pressure
See REF354

A crew member has suffered possible frostbite to the toes of both feet. You should _____.
immerse the feet in warm water

Persons who have swallowed a non-petroleum based poison are given large quantities of warm, soapy water or warm salt water to _____.
induce vomiting

Which of the following methods will reduce the possibility of producing an electrical spark?
Placing an insulating flange or a section of non-conducting hose in the hose setup.
Using a cargo hose with a built in electrical bonding wire.
Connecting a bonding wire between the shore side piping and the vessel.
All of the above.

If a cargo tank has not been certified as gas free, _____.
breathing apparatus should always be used

Small oil spills on deck can be prevented from contaminating any waters by _____.
plugging all scuppers and drains

See REF2019

It is necessary to cool the bulkheads and decks surrounding a compartment where there is a fire in order to _____.
prevent the fire from spreading by the conduction of heat
See REF016

A simple precaution to reduce the possibility of accidental fires in the paint locker, is to _____.
not allow oily rags to accumulate in the space

The class of fire on which a blanketing effect is essential to extinguish the fire is _____.
class B
See REF151

A hand portable CO2 fire extinguisher is effective on burning oil only _____.
if applied promptly

If there has been a fire in a closed unventilated compartment it may be unsafe to enter because of _____.
a lack of oxygen

In fighting a fire in a fuel tank, the FIRST action you should attempt is to _____.
secure all sources of fresh air to the tank

The wooden plug fitted tightly in the vent of a damaged tank may prevent the tank from _____.
filling completely
See REF303

Burning diesel oil should be treated as which class of fire?
Class "B"
See REF326

A simple precaution to reduce the possibility of accidental fires in the paint locker, is to _____.
not allow oily rags to accumulate in the space

In reviewing ship drawings with a new junior office you note that some divisional bulkheads are labeled A60. In the discussion with the junior officer, what should be noted is indicated by the label A60?
Fire division boundary, A Class, with insulation that will limit temperature rise below the allowable level for 60 minutes.

If a fire broke out in an automation console, you would first secure the power and then proceed to use which of the listed hand portable fire extinguishers?
CO2
See REF333

Actuating the fixed CO2 system should cause the automatic shutdown of the _____.
supply and exhaust ventilation
See REF339

While in port working cargo a fire is reported on the forward car deck. The Captain sounds the general alarm, the crew musters and starts fighting the fire. As Chief Engineer you inform the Captain that shore side fire fighting assistance needs to be called, how would you proceed?
Continue fighting the fire and use the ship's Fire Control Plan and coordinate with shore side fire fighters upon their arrival to extinguish the fire.

As Chief Engineer you should understand the concept of loll and its cause. An angle of loll is commonly caused by which of the following conditions?
A negative GM.
See REF852

The factor contributing to the greatest effect on the ship's period of roll is the _____.
vertical weight distribution

Reserve buoyancy is the _____.
volume of intact space above the waterline
See REF154

The distance between the bottom of the hull and the waterline is called _____.
draft

In the absence of external forces, adding weight to one side of a floating vessel, will cause the vessel to _____.
list until the center of buoyancy is aligned vertically with the center of gravity
See REF839

Your ship has run aground and it is necessary to determine whether or not a compartment has flooded. Therefore, you should _____.
tap the bulkhead with a hammer to check for a water level
See REF1990

Wooden shoring, with a cross-sectional dimension of 4" X 4" should not be longer than _____.
10 feet

Why should you wear a self-contained breathing apparatus before entering a closed compartment to fight a fire?
The fire produces smoke, which contains toxic gases that cause breathing difficulties and irritation of the respiratory tract.
The fire consumes oxygen which may lead to asphyxiation.
The fire produces carbon monoxide which causes an oxygen deficiency in the brain and body, leading quickly to death.
All of the above.
See REF1995

Which of the following conditions represents the appropriate time for setting off distress flares and rockets?
Only when there is a chance of them being seen by rescue vessels.

When collecting condensation for drinking water, _____.
a sponge used to mop up and store condensation must be kept salt free

Which of the components listed are interchangeable between different backpack self-contained breathing apparatus produced by various manufacturers?
The air cylinder

The most important reason for taking anti-seasickness pills as soon as possible after entering a life raft is to _____.
prevent loss of body moisture by vomiting

For hydrogen sulfide detection, sensitized tapes indicate the presence of this gas by means of discoloration of an exposed spot on the tape. The shade of the color on the spot depends upon the concentration of the gas and _____.
duration of exposure

When preparing to pump flammable liquids with a centrifugal pump, you should _____.
check for gland leakage and any fire hazard

If emergency welding repairs must be made to the upper area of a fuel tank, the tank and/or adjacent compartments may need to be _____.
filled with water
gas freed
inerted
All of the above.

By definition, combustible liquids are liquids which _____.
have a flash point of 80°F or higher
See REF094

Span gas is used aboard liquefied natural gas carriers to _____.
calibrate the gas leak detectors
See REF233

To prevent oil from escaping into the sea when ballasting through the cargo piping system, you should FIRST _____.
start the cargo pump, then open sea suction valves

An ullage reading is the distance from a given point at the _____.
top of the sounding tube down to the surface of the liquid
See REF2017

Which of the following operations aboard a tanker must be recorded in the Oil Record Book on a tank-to-tank basis according to Coast Guard Regulations?
The discharge overboard in port or at sea of any bilge water accumulated in machinery spaces.
The loading or unloading of any or all oil cargo.
Any internal transfer of oil cargo during a voyage.
All of the above.
See REF609

When tanks have been washed with crude oil, and ballasted without being water rinsed, the ballast is referred to as _____.
dirty ballast

Coast Guard Regulations (46 CFR) require that life jackets shall be _____.
provided for each person onboard
provided for all personnel on watch
readily accessible to persons in the engine room
All of the above.
See REF398

The carbon dioxide cylinders of a fixed fire extinguishing system may be located inside the protected space, if the quantity of CO2 required to protect that space is not more than _____.
300 pounds
See REF342

Exemption or partial exemption from compliance with any requirement in the Oil or Hazardous Material Pollution Prevention Regulations prescribed in (33 CFR 155) may be granted by the _____.
Commandant of the Coast Guard
See REF2040

A new ocean going ship of 2000 gross tons having an inoperative oily water separator may dispose of its bilge slops by _____.
holding its slops onboard until they can be discharged to a shore side reception facility

According to MARPOL, the definition of oil does NOT include _____.
cooking oil
See REF2053

According to Coast Guard Regulations (46 CFR), a 10 pound dry chemical extinguisher is equivalent to a _____.
15 pound CO2 fire extinguisher
See REF2064

When fire detecting systems, fire extinguishing systems, and associated equipment are not required by the Coast Guard but are installed on a cargo vessel at the option of the vessel's owner, they _____.
must also be inspected and/or tested in accordance with Coast Guard Regulations at each Inspection for Certification

A new ocean going ship of 2000 gross tons having an inoperative oily water separator may dispose of its bilge slops by _____.
holding its slops onboard until they can be discharged to a shore side reception facility

No person may serve as the person-in-charge of oil transfer operations on more than one vessel at a time _____.
unless authorized by the Captain of the Port
See REF440

For all loading operations, the terminal must supply the vessel with a means in which the vessel's designated person-in-charge may stop the flow of oil to the vessel, insuring immediate shutdown in the event of a hose rupture, tank overflow, etc. This means of control may be activated _____.
pneumatically or mechanically
electrically
via a communications device used for no other purpose
All of the above.
See REF227

You are involved in an emergency landing of a helicopter on the water. You should inflate your life jacket _____.
after exiting clear of the helicopter

The air spaces in the floor of an inflatable raft will provide protection against _____.
tears in the outside skin of bottom of the raft
warm water temperatures
cold water temperatures
All of the above.

Your vessel, of more than 1000 gross tons on an international voyage is crossing the Atlantic Ocean. The second engineer injures his hand while working on a pump. The injury requires more than basic first aid. As the senior officer onboard how would you proceed?
Contact the medical advisory service contracted by your company to speak with a shore side doctor and address the injury as directed by the doctor.

During oil transfer operations, who would be responsible to guarantee that the posted transfer procedures are being followed?
The designated person in charge
See REF262

In cleaning up an oil spill, the use of chemical agents would _____.
disperse or dissolve the oil in the water
See REF026

Which of the following pressures represents the normal pressure setting of a pressure-vacuum relief valve as normally found on tank vessels?
16.7 psia -14.2 psia

The state of charge of a stored pressure type dry chemical fire extinguisher can be readily determined by _____.
visual inspection of the pressure gage

Properly stowed fire hose is either faked or rolled into a rack with the _____.
nozzle end arranged to be easily run out to the fire

The source of power for the CO2 discharge alarm siren is obtained from _____.
the flow of CO2 under pressure

One of the disadvantages of using carbon dioxide to extinguish a fire in an enclosed space is _____.
prolonged exposure to high concentrations of CO2 gas causes suffocation
See REF2086

Which of the fire extinguishing agents listed can be used to effectively combat a class "B" fire?
CO2
Foam
Dry chemical
All of the above.
See REF121

Fires are grouped into which of the listed categories?
Class A, B, C, and D
See REF012

You are preparing to administer closed chest cardiac massage on a victim of electric shock. Which of the following actions is NOT a recommended procedure?
Giving cardiac massage without artificial respiration.

In any major personal injury, first aid is to include the treatment of the injury and what additional treatment?
Treatment for traumatic shock
See REF355

Bleeding from a vein may be ordinarily controlled by _____.
applying direct pressure to the wound
See REF2103

Part of the treatment for frostbite of the feet is the rapid rewarming of the cold injury. What is the preferred temperature of rewarming when using the wet rapid rewarming method?
Immersing the feet in an adequate amount of water maintained between 104oF to 107.6oF.

What is the alarm signal for a fire emergency or fire drill onboard a merchant ship?
Continuous blast of the whistle for not less than 10 seconds supplemented by the continuous ringing of the general alarm bells for not less than 10 seconds.

When checking the level of a volatile liquid in a tank on the weather deck of a tank vessel, you should position yourself _____.
at a right angle to the wind direction
See REF2007

A tank or compartment is "gas free" when there is an absence of dangerous concentrations of _____.
flammable or toxic gases

See REF2009

The most common type of containment device for spilled oil on the water is the use of _____.
booms
See REF2059

Which of the following procedures reduces the possibility of an interior ventilation duct fire from rapidly spreading?
Keeping the duct interior clean.

Which of the listed classes of fire would most likely occur in the engine room of a vessel?
Classes B and C

In a cartridge-operated dry chemical type fire extinguisher, when the CO2 cartridge is activated, the dry chemical is released from the extinguisher _____.
with the squeeze-grip on/off nozzle at the end of the hose

The most effective method of extinguishing a class "A" fire is by _____.
quenching and cooling
See REF344

In fighting a fire in a fuel tank, the FIRST action you should attempt is to _____.
secure all sources of fresh air to the tank

In a compartment that has been completely flooded with water, the greatest pressure will be exerted _____.
along the bottom of any bulkhead
See REF1991

The spreading of fire as a result of heat being carried through a vessel's ventilation system, is an example of heat transfer by _____.
convection
See REF016

You are conducting training on firefighting procedures. What type of fire is characterized by the burning of flammable liquids, greases, etc., where a blanketing effect is essential?
Type B

Which of the following procedures reduces the possibility of an interior ventilation duct fire from rapidly spreading?
Keeping the duct interior clean.

During repairs it is necessary to replace existing vessel bulkhead. Drawings indicate the bulkhead is A60. "A" indicates which of the following?
"A" class bulkheads must not allow flame or smoke passage for 60 minutes when subjected to a fire test

The state of charge of a stored pressure type dry chemical fire extinguisher can be readily determined by _____.
visual inspection of the pressure gage

What would be a major consequence of allowing the refrigeration system of a low pressure fixed CO2 fire extinguishing system to remain inoperable?
The entire charge may eventually be lost due to CO2 boil-off venting through the relief valve.

You are the Chief Engineer of a vessel of more than 1600 gross tons on an international voyage. While in port working cargo a fire is reported in the engine room. Shore side fire fighting assistance has been requested. How would you proceed?
Use the ship's Fire Control Plan and coordinate with shore side fire fighters to extinguish the fire.

Your ship is working cargo in port when a hydraulic hose ruptures on the weather deck and oil spills into the harbor. Once the source of the oil spill has been secured, how would you proceed?
Follow the procedures outlined in the vessel's Shipboard Oil Pollution Emergency Plan (SOPEP) manual.

You can generally improve the vessel's stability in a hazardous situation by _____.
ballasting appropriate port or starboard deep tanks

If the cause of a sudden severe list is due to negative initial stability, counter flooding into empty ballast tanks may _____.
cause the unit to flop to a greater angle

After transferring a weight forward on a vessel, the draft at the center of flotation will _____.
remain the constant

What effect will transferring fuel oil from #1P double bottom to #3P double bottom have on the trim of a vessel?
The forward draft will decrease.

Progressive flooding in the engine room may be minimized by securing watertight boundaries and _____.
pumping out flooded compartments

After measuring the length to which a section of shoring should be cut, you should cut the shoring _____.
approximately 1/2 inch shorter than measured length to allow for the use of wedges

You are about to enter a compartment to investigate a suspected smoldering fire. If you're not wearing an self-contained breathing apparatus, you should test the compartment's atmosphere to determine if there is/are _____.
a toxic atmosphere in the compartment
an explosive mixture in the compartment
sufficient oxygen to sustain human life
All of the above.

Which of the following conditions represents the appropriate time for setting off distress flares and rockets?
Only when there is a chance of them being seen by rescue vessels.

Which of the lifeboat parts listed must be painted bright red?
Releasing gear lever

Provided every effort is used to preserve body moisture content by avoiding perspiration, how long is it normally possible to survive in a survival craft without stored quantities of water?
Up to 14 days

Which of the following conditions represents a particular advantage of using a positive pressure type self-contained breathing apparatus in an atmosphere that is immediately dangerous to life or health?
The positive pressure in the face piece prevents contaminated air from entering the face piece.

The hand brake of a lifeboat winch is _____.
applied by dropping the counterweighted lever

While adrift in an inflatable life raft in hot, tropical weather _____.
deflating the floor panels may help to cool personnel

When required to work in an area where explosive gases may accumulate, you should use tools which are _____.
non-sparking
See REF2003

Which of the following is classified as a grade "E" combustible liquid?
Bunker "C"
See REF150

While in a foreign port, burning and welding repairs are to be carried out on a section of heating coil located in a tank having last contained a grade "D" product. Which of the following procedures should be followed when a certified marine chemist is not available?
Prior to any hot work, an inspection must be made by the senior officer present, and an entry made in the official logbook.

The explosive range of methane is 5% to 15% by volume in air. This means a vapor/air mixture of _____.
5 percent methane by volume will give a reading of 100 percent L.E.L. on a combustible gas indicator
See REF094

If a cargo tank has not been certified as gas free, _____.
breathing apparatus should always be used

Water ballast placed in a tank that has been crude oil washed, but not water rinsed, shall be regarded as _____.
dirty ballast

A ullage reading is the distance from a given point at the _____.
top of the sounding tube down to the surface of the liquid

The overall responsibility in maintaining the Oil Record Book is given to _____.
Master

Crude oil washing has which of the following disadvantages?
It requires following additional work procedures and close attention by the crew during cargo operations.

In addition to the lifejackets stowed in places that are readily accessible, lifejackets must also be stowed at _____.
each manned watch station
See REF2025

According to 46 CFR Part 95, which of the following statements is FALSE concerning the regulations pertaining to the carbon dioxide cylinder room for a CO2 fixed fire extinguishing system?
The door must be kept unlocked.
See REF2030

Some Pollution Prevention Regulations (33 CFR), only apply to "new ships." Under these regulations, a new ship is a ship _____.
for which the building contract has been placed after December 31, 1975
See REF2041

Bilges may be pumped _____.
overboard through an oily water separator
See REF2049

When entering the pump room of a tank vessel to rescue an unconscious person, which items of the equipment listed are you required to be using?
Self-contained breathing apparatus and lifelines

According to Coast Guard Regulations (46 CFR), portable and semi-portable fire extinguishers are classified by a letter and numeric designator. The letter designation indicates _____.
the type of fire the unit could be expected to extinguish
See REF333

If a fixed fire extinguishing system is installed on any vessel, it must be of a type approved by the _____.
U.S. Coast Guard
See REF2031

On U.S. inspected ships, oily water separating equipment, bilge alarms, and bilge monitors must be approved under _____.
46 CFR 162
See REF2048

According to the Pollution Prevention Regulations (33 CFR), who is to make the final decision of when oil transfer may begin?
Designated persons-in-charge of vessel and facility
See REF221

The emergency shutdown requirements of Pollution Prevention Regulations (33 CFR Part 155) apply to _____.
cargo transfer systems
See REF232

A rigid lifesaving device designed for a group of survivors to hold on to while in the water is defined as a _____.
buoyant apparatus
See REF1996

Puncture leaks in the lower tubes or bottom of an inflatable liferaft should FIRST be stopped by using _____.
sealing clamps

An oxygen indicator will detect _____.
an oxygen deficiency in a space
See REF157

During fueling operations oil is detected in the water adjacent to your vessel. If however, it is determined to be from some source other than your vessel, you should _____.
notify the Coast Guard

In cleaning up an oil spill, the use of straw or reclaimed paper fibers would be an example of which type of oil removal?
Absorbent removal
See REF026

Tank stripping is accomplished more effectively by using a _____.
a positive displacement pump
See REF2021

In a cartridge-operated dry chemical type fire extinguisher, when the CO2 cartridge is activated, the dry chemical is released from the extinguisher _____.
with the squeeze-grip on/off nozzle at the end of the hose

If the threads and gasket of a fire hose coupling are in good condition, the minimum mechanical advantage necessary for making a watertight connection to another hose coupling, can be developed with _____.
your hands

After extinguishing a paint locker fire using the fixed CO2 system, the next immediate action is for the space to be _____.
left closed with ventilation off until all boundaries are cool

The advantage of using a dry chemical fire extinguishing agent is _____.
its good stability and non-toxicity
See REF015

The spreading of fire as a result of heat being carried through a vessel's ventilation system, is an example of heat transfer by _____.
convection
See REF016

A galley grease fire would be classified as _____.
Class B
See REF326

Which of the listed sources of ignition may cause fuel vapors to ignite?
An open and running motor
Loose wiring
Static electricity
All of the above.

In a typical automatic fire alarm system, which of the listed actions will cause an indication of a fire to be given in the annunciator cabinet?
The fire alarm test push-button is operated.
A rise in temperature activating a heat detector.
A manual fire alarm box is activated.
All of the above.

For a victim who is coughing and gagging, as a result of a partial obstruction of the airway by a foreign body, a potential rescuer should _____.
immediately give four abdominal thrusts

Which of the following is NOT a treatment for traumatic shock?
Massage the arms and legs to restore circulation.

In all but the most severe cases, bleeding from a wound should be controlled by _____.
applying direct pressure to the wound
See REF354

Part of the treatment for frostbite of the feet is the rapid rewarming of the cold injury. What is the preferred method of rewarming?
Immersion of the feet in water between 104oF to 107.6oF.

If you hear a CO2 activated alarm warning you to evacuate the engine room, how much time do you have to evacuate before the CO2 gas is released into the engine room?
20 seconds

The vapors given off by heated fuel oil are flammable, explosive, and _____.
heavier than air

If emergency welding repairs must be made to the upper area of a fuel tank, the tank and/or adjacent compartments may need to be _____.
inerted
filled with water
gas freed
All of the above.

In cleaning up an oil spill, the use of straw or reclaimed paper fibers would be an example of which type of oil removal?
Absorbent removal
See REF026

The spreading of fire as a result of heat being carried through a vessel's ventilation system, is an example of heat transfer by _____.
convection
See REF016

In accordance with 46 CFR Part 109, the Muster List ("Station Bill") shows each crew lifeboat station, their duties during abandonment, basic instructions, and _____.
all emergency signals

To fight a class "C" fire, you should use carbon dioxide or _____.
dry chemical

Recharging a previously used cartridge-operated dry chemical fire extinguisher is accomplished by _____.
replacing the propellant cartridge and refilling it with powder
See REF015

When fighting a liquefied natural gas fire, you should _____.
secure the source of gas, then extinguish the fire

Progressive flooding in the engine room may be minimized by securing watertight boundaries and _____.
pumping out flooded compartments

In the event of a fire, the doors to a stair tower must be closed to prevent the spread of fire by _____.
convection
See REF016

A Type B fire has been reported onboard your vessel. What type of materials would your fire teams expect to find at the scene?
Flammable liquids, greases, etc., where a blanketing effect is essential

In accordance with 46 CFR Part 109, the Muster List ("Station Bill") shows each crew lifeboat station, their duties during abandonment, basic instructions, and _____.
all emergency signals

During repairs it is necessary to replace an existing vessel bulkhead. Drawings indicate it is a "B" class bulkhead. This indicates which of the following?
"B" class bulkheads must not allow flame passage for 30 minutes when subjected to a fire test.

Servicing of a cartridge-operated dry chemical fire extinguisher aboard ship would include ensuring that the _____.
powder is not caked and there is a full charge

Why is it essential to introduce CO2 from a fixed fire extinguishing system, into a large engine room, as quickly as possible?
Updraft from the fire tends to carry the CO2 away.

In fighting a fire in a fuel tank, the FIRST action you should attempt is to _____.
secure all sources of fresh air to the tank

The best means of combating an oil fire on the surface of the water surrounding a vessel tied to the pier, is to use _____.
foam directed against the vessel's side

See REF2088

IMO Resolution A167, 1968, Res. No. 749(18) 3.1 (1995, amended 1999), and section 2.2 in the 2008 IS Code, sets the general criterion for vessels of more than 100 meters in length. Your vessel is covered by this regulation. In review of your vessels stability data, after refueling you notice that the GM of the vessel is less than the required 0.15 meters. What should you instruct the 2nd engineer to do with the fuel just received?
Transfer the fuel to lower the ship's KG and minimize the free surface effect.

When a vessel is inclined, the tendency for it to return to its original position is caused by the _____.
movement of the center of buoyancy toward the low side of the vessel

A ballast tank is one-third full when additional ballast is added until it is two-thirds full. The increased amount of liquid in the tank will have the greatest influence on the _____.
transverse stability

In the absence of external forces, the center of gravity of a floating vessel is located directly above the _____.
geometric center of the displaced volume
See REF839

Many uninspected motor vessels require load lines. For the purpose of the Load Line Regulations, the term 'surveyor' means _____.
any person designated by the American Bureau of Shipping who actually examines the vessel
See REF2116

You may improve a vessel's stability by _____.
keeping the fuel tanks topped off

In a compartment that has been completely flooded with water, the greatest pressure will be exerted _____.
along the bottom of any bulkhead
See REF1991

The bypass valve on a self-contained breathing apparatus (SCBA) bypasses _____.
the regulator in an emergency
See REF539

If a life raft should capsize, _____.
right the raft using the righting straps

Your vessel is equipped with totally enclosed lifeboats. Which of the following statements is correct should the boat be enveloped in flames?
A pressurized air tank will provide approximately ten minutes of air for the survivors and the diesel engine.

A self-righting survival craft will return to an upright position provided that all personnel _____.
are seated with seatbelts on and doors shut

Which type of respiratory protection is preferable for the repair/investigation personnel in a hydrogen sulfide (H2S) environment?
Positive Self-Contained Breathing Apparatus (SCBA)

The purpose of the wire stretched between the lifeboat davit heads is to _____.
support the manropes

When launching an inflatable life raft, you should make sure that the operating cord is _____.
fastened to some substantial part of the vessel
See REF137

Bunker "C" is classified as a grade _____.
E liquid
See REF2006

A health hazard term listed on a Safety Data Sheet (SDS) that indicates allergic-like reaction in some people after repeated exposure is _____.
sensitizer
See REF2010

Ethylene oxide has a lower explosive limit of 2.0% and an upper explosive limit of 100% by volume in air. This means _____.
there is no possible ethylene oxide concentration in air which is too rich to burn

Which of the following conditions must be met before a marine chemist will issue a certificate for a compartment to be "safe for workers, safe for hot work"?
The residues in the compartment must not be capable of producing any toxic gas under existing atmospheric conditions.
The concentration of combustible gases in the compartment's atmosphere must be less than 10 percent of the lower flammable limit.
The toxic gases in the compartment's atmosphere must be within permissible concentrations.
All of the above.

According to 33 CFR's, an oceangoing ship of over 400 gross tons must be fitted with a standard discharge shore connection. What size bolt circle diameter is required for this shore connection to transfer oily ballast to a shore side reception facility?
183 mm
See REF2013

As a precaution against oil spills when topping off fuel tanks, you should _____.
notify the shore pumping station to reduce the pumping rate as tanks near full capacity

The Oil Record Book for all U.S. ships _____.
is the property of the U.S. government
See REF609

The component in an inert gas system used for cleaning the gas of solid and sulfur combustion products, while simultaneously cooling the inert gas, is called the _____.
scrubber
See REF165

According to Coast Guard Regulations (46 CFR), the fuel tanks of motor-propelled lifeboats shall be _____.
emptied and the fuel changed at least once each year
See REF2026

In accordance with 46 CFR Part 95, in a fixed CO2 fire extinguishing system, where provision is made for the release of CO2 by the operation of a remote control, provision is also to be made for releasing the CO2 from _____.
the cylinder location

If a vessel moored at a U.S. terminal does not comply with Coast Guard Pollution Prevention Regulations (33 CFR), it may be detained by the _____.
Captain of the Port
See REF2042

each leg. To prevent a Class A fire from spreading by conduction through steel, spray water fog on all exterior surfaces (including top and bottom) until no more steam is produced. Repeat the procedure as often as necessary .

REF349
In the mouth-to-mouth method, which is recommended whenever possible, you must establish an airtight seal. This normally is done by pinching the victim's nostrils and applying your mouth tightly over the victim's mouth. Blow your breath into the victim at a rate of 12 to 15 times a minute, removing your mouth between breaths to allow exhaling. The victim's chest should rise during breathing and fall during exhaling. If this doesn't happen, reposition the victim's head and chin and be sure you have sealed the nose and mouth.

REF350
Cardiopulmonary resuscitation (CPR) is a lifesaving technique useful in many emergencies, including heart attack or near drowning, in which someone's breathing or heartbeat has stopped. In 2010, the American Heart Association updated its guidelines to recommend that everyone — untrained bystanders and medical personnel alike — begin CPR with chest compressions. It's far better to do something than to do nothing at all if you're fearful that your knowledge or abilities aren't 100 percent complete. Remember, the difference between your doing something and doing nothing could be someone's life. Here's advice from the American Heart Association: * Untrained. If you're not trained in CPR, then provide hands-only CPR. That means uninterrupted chest compressions of about 100 a minute until paramedics arrive (described in more detail below). You don't need to try rescue breathing. * Trained, and ready to go. If you're well trained and confident in your ability, begin with chest compressions instead of first checking the airway and doing rescue breathing. Start CPR with 30 chest compressions before checking the airway and giving rescue breaths. * Trained, but rusty. If you've previously received CPR training but you're not confident in your abilities, then just do chest compressions at a rate of about 100 a minute. (Details described below.) The above advice applies to adults, children and infants needing CPR, but not newborns. CPR can keep oxygenated blood flowing to the brain and other vital organs until more definitive medical treatment can restore a normal heart rhythm. When the heart stops, the absence of oxygenated blood can cause irreparable brain damage in only a few minutes. A person may die within eight to 10 minutes. To learn CPR properly, take an accredited first-aid training course, including CPR and how to use an automatic eternal defibrillator (AED). Before you begin Before starting CPR, check: * Is the person conscious or unconscious? * If the person appears unconscious, tap or shake his or her shoulder and ask loudly, "Are you OK?" * If the person doesn't respond and two people are available, one should call 911 or the local emergency number and one should begin CPR. If you are alone and have immediate access to a telephone, call 911 before beginning CPR — unless you think the person has become unresponsive because of suffocation (such as from drowning). In this special case, begin CPR for one minute and then call 911 or the local emergency number. * If an AED is immediately available, deliver one shock if instructed by the device, then begin CPR. Remember to spell C-A-B In 2010, the American Heart Association changed its long-held acronym of ABC to CAB — circulation, airway, breathing — to help people remember the order to perform the steps of CPR. This change emphasizes the importance of chest compressions to help keep blood flowing through the heart and to the brain. Circulation: Restore blood circulation with chest compressions 1. Put the person on his or her back on a firm surface. 2. Kneel net to the person's neck and shoulders. 3. Place the heel of one hand over the center of the person's chest, between the nipples. Place your other hand on top of the first hand. Keep your elbows straight and position your shoulders directly above your hands. 4. Use your upper body weight (not just your arms) as you push straight down on (compress) the chest at least 2 inches (approximately 5 centimeters). Push hard at a rate of about 100 compressions a minute. 5. If you haven't been trained in CPR, continue chest compressions until there are signs of movement or until emergency medical personnel take over. If you have been trained in CPR, go on to checking the airway and rescue breathing. Airway: Clear the airway 1. If you're trained in CPR and you've performed 30 chest compressions, open the person's airway using the head-tilt, chin-lift maneuver. Put your palm on the person's forehead and gently tilt the head back. Then with the other hand, gently lift the chin forward to open the airway. 2. Check for normal breathing, taking no more than five or 10 seconds. Look for chest motion, listen for normal breath sounds, and feel for the person's breath on your cheek and ear. Gasping is not considered to be normal breathing. If the person isn't breathing normally and you are trained in CPR, begin mouth-to-mouth breathing. If you believe the person is unconscious from a heart attack and you haven't been trained in emergency procedures, skip mouth-to-mouth rescue breathing and continue chest compressions. Breathing: Breathe for the person Rescue breathing can be mouth-to-mouth breathing or mouth-to-nose breathing if the mouth is seriously injured or can't be opened. 1. With the airway open (using the head-tilt, chin-lift maneuver), pinch the nostrils shut for mouth-to-mouth breathing and cover the person's mouth with yours, making a seal. 2. Prepare to give two rescue breaths. Give the first rescue breath — lasting one second — and watch to see if the chest rises. If it does rise, give the second breath. If the chest doesn't rise, repeat the head-tilt, chin-lift maneuver and then give the second breath. Thirty chest compressions followed by two rescue breaths is considered one cycle. 3. Resume chest compressions to restore circulation. 4. If the person has not begun moving after five cycles (about two minutes) and an automatic eternal defibrillator (AED) is available, apply it and follow the prompts. Administer one shock, then resume CPR — starting with chest compressions — for two more minutes before

administering a second shock. If you're not trained to use an AED, a 911 operator may be able to guide you in its use. Use pediatric pads, if available, for children ages 1 through 8. Do not use an AED for babies younger than age 1. If an AED isn't available, go to step 5 below. 5. Continue CPR until there are signs of movement or emergency medical personnel take over. To perform CPR on a child The procedure for giving CPR to a child age 1 through 8 is essentially the same as that for an adult. The differences are as follows: * If you're alone, perform five cycles of compressions and breaths on the child — this should take about two minutes — before calling 911 or your local emergency number or using an AED. * Use only one hand to perform heart compressions. * Breathe more gently. * Use the same compression-breath rate as is used for adults: 30 compressions followed by two breaths. This is one cycle. Following the two breaths, immediately begin the net cycle of compressions and breaths. * After five cycles (about two minutes) of CPR, if there is no response and an AED is available, apply it and follow the prompts. Use pediatric pads if available. If pediatric pads aren't available, use adult pads. Continue until the child moves or help arrives. To perform CPR on a baby Most cardiac arrests in babies occur from lack of oxygen, such as from drowning or choking. If you know the baby has an airway obstruction, perform first aid for choking. If you don't know why the baby isn't breathing, perform CPR. To begin, examine the situation. Stroke the baby and watch for a response, such as movement, but don't shake the baby. If there's no response, follow the CAB procedures below and time the call for help as follows: * If you're the only rescuer and CPR is needed, do CPR for two minutes — about five cycles — before calling 911 or your local emergency number. * If another person is available, have that person call for help immediately while you attend to the baby. Circulation: Restore blood circulation 1. Place the baby on his or her back on a firm, flat surface, such as a table. The floor or ground also will do. 2. Imagine a horizontal line drawn between the baby's nipples. Place two fingers of one hand just below this line, in the center of the chest. 3. Gently compress the chest about 1.5 inches (about 4 cm). 4. Count aloud as you pump in a fairly rapid rhythm. You should pump at a rate of 100 compressions a minute. Airway: Clear the airway 1. After 30 compressions, gently tip the head back by lifting the chin with one hand and pushing down on the forehead with the other hand. 2. In no more than 10 seconds, put your ear near the baby's mouth and check for breathing: Look for chest motion, listen for breath sounds, and feel for breath on your cheek and ear. Breathing: Breathe for the infant 1. Cover the baby's mouth and nose with your mouth. 2. Prepare to give two rescue breaths. Use the strength of your cheeks to deliver gentle puffs of air (instead of deep breaths from your lungs) to slowly breathe into the baby's mouth one time, taking one second for the breath. Watch to see if the baby's chest rises. If it does, give a second rescue breath. If the chest does not rise, repeat the head-tilt, chin-lift maneuver and then give the second breath. 3. If the baby's chest still doesn't rise, examine the mouth to make sure no foreign material is inside. If the object is seen, sweep it out with your finger. If the airway seems blocked, perform first aid for a choking baby. 4. Give two breaths after every 30 chest compressions. 5. Perform CPR for about two minutes before calling for help unless someone else can make the call while you attend to the baby. 6. Continue CPR until you see signs of life or until medical personnel arrive.

REF354
If possible, before you try to stop severe bleeding, wash your hands to avoid infection and put on synthetic gloves. Don't reposition displaced organs. If the wound is abdominal and organs have been displaced, don't try to push them back into place — cover the wound with a dressing. For other cases of severe bleeding, follow these steps: 1. Have the injured person lie down and cover the person to prevent loss of body heat. If possible, position the person's head slightly lower than the trunk or elevate the legs. This position reduces the risk of fainting by increasing blood flow to the brain. If possible, elevate the site of bleeding. 2. While wearing gloves, remove any obvious dirt or debris from the wound. Don't remove any large or more deeply embedded objects. Don't probe the wound or attempt to clean it at this point. Your principal concern is to stop the bleeding. 3. Apply pressure directly on the wound until the bleeding stops. Use a sterile bandage or clean cloth and hold continuous pressure for at least 20 minutes without looking to see if the bleeding has stopped. Maintain pressure by binding the wound tightly with a bandage (or a piece of clean cloth) and adhesive tape. Use your hands if nothing else is available. If possible, wear rubber or late gloves or use a clean plastic bag for protection. 4. Don't remove the gauze or bandage. If the bleeding continues and seeps through the gauze or other material you are holding on the wound, don't remove it. Instead, add more absorbent material on top of it. 5. Squeeze a main artery if necessary. If the bleeding doesn't stop with direct pressure, apply pressure to the artery delivering blood to the area of the wound. Pressure points of the arm are on the inside of the arm just above the elbow and just below the armpit. Pressure points of the leg are just behind the knee and in the groin. Squeeze the main artery in these areas against the bone. Keep your fingers flat. With your other hand, continue to exert pressure on the wound itself. 6. Immobilize the injured body part once the bleeding has stopped. Leave the bandages in place and get the injured person to the emergency room as soon as possible. If you suspect internal bleeding, call 911 or your local emergency number. Signs of internal bleeding may include: * Bleeding from body cavities, such as the ears, nose, rectum or vagina * Vomiting or coughing up blood * Bruising on neck, chest, abdomen or side (between ribs and hip) * Wounds that have penetrated the skull, chest or abdomen * Abdominal tenderness, possibly accompanied by rigidity or spasm of abdominal muscles * Fractures * Shock, indicated by weakness, anxiety, thirst or skin that's cool to the touch

REF355
Shock may result from trauma, heatstroke, blood loss, an allergic reaction, severe infection, poisoning, severe burns or other causes. When a person is in shock, his or her organs aren't getting enough blood or oxygen, which if untreated, can lead to permanent organ damage or death. Various signs and symptoms appear in a person experiencing shock: * The skin is cool and clammy. It may appear pale or gray. * The pulse is weak and rapid. Breathing may be slow and shallow, or hyperventilation (rapid or deep breathing) may occur. Blood pressure is below normal. * The person may be nauseated. He or she may vomit. * The eyes lack luster and may seem to stare. Sometimes the pupils are dilated. * The person may be conscious or unconscious. If conscious, the person may feel faint or be very weak or confused. Shock sometimes causes a person to become overly excited and anxious. If you suspect shock, even if the person seems normal after an injury: * Call 911 or your local emergency number. * Have the person lie down on his or her back with feet about a foot higher than the head. If raising the legs will cause pain or further injury, keep him or her flat. Keep the person still. * Check for signs of circulation (breathing, coughing or movement). If absent, begin CPR. * Keep the person warm and comfortable. Loosen belt and tight clothing and cover the person with a blanket. Even if the person complains of thirst, give nothing by mouth. * Turn the person on his or her side to prevent choking if the person vomits or bleeds from the mouth. * Seek treatment for injuries, such as bleeding or broken bones.

REF357
The danger from an electrical shock depends on the type of current, how high the voltage is, how the current traveled through the body, the person's overall health and how quickly the person is treated. Call 911 or your local emergency number immediately if any of these signs or symptoms occur: * Cardiac arrest * Heart rhythm problems (arrhythmias) * Respiratory failure * Muscle pain and contractions * Burns * Seizures * Numbness and tingling * Unconsciousness While waiting for medical help, follow these steps: * Look first. Don't touch. The person may still be in contact with the electrical source. Touching the person may pass the current through you. * Turn off the source of electricity, if possible. If not, move the source away from you and the person, using a nonconducting object made of cardboard, plastic or wood. * Check for signs of circulation (breathing, coughing or movement). If absent, begin cardiopulmonary resuscitation (CPR) immediately. * Prevent shock. Lay the person down and, if possible, position the head slightly lower than the trunk, with the legs elevated. After coming into contact with electricity, the person should see a doctor to check for internal injuries, even if he or she has no obvious signs or symptoms. Caution * Don't touch the person with your bare hands if he or she is still in contact with the electrical current. * Don't get near high-voltage wires until the power is turned off. Stay at least 20 feet away — farther if wires are jumping and sparking. * Don't move a person with an electrical injury unless the person is in immediate danger.

REF365
You must secure a life raft's sea painter to a permanent object on deck using a "weak link". The force exerted by a life raft's buoyancy, break the weak link, and free the life raft if the ship sinks.

REF366
46 CFR 133.70(b)(2)(i)

REF398
Coast Guard regulations require that a life jacket be provided for each person on board In addition, a life jacket must be provided for each person on watch at his duty station. A life jacket must be readily accessible to each person in the engineroom. A work vest may never be substituted for a life jacket during drills or in an actual emergency. Work vests must be stowed where they will not be confused with life jackets.

REF401
46 CFR 160.006-2(b)

REF409
§ 108.550 Survival craft launching and recovery arrangements: General.

REF412
Cork was the first material for these “modern” life preservers, followed by kapok fiber. Introduced in the early 20th century, kapok was subsequently banned for being flammable and losing buoyancy. Even so, it was reapproved in 1918; cork life preservers were heavy and bulky, and kapok could be added to watertight pockets for better flexibility and comfort. In 1928, Vestris, a British passenger steamer, sank, and many lives were lost. The following year an International Convention for Safety of Life at Sea convened, noting that many of the dead had been found floating face-down. Kapok was seen as superior because it kept the heads of unconscious victims above water.

REF421
159.311 Safety exception. The regulations in this subpart shall not apply to discharges made for the purpose of securing the safety of the cruise vessel or saving life at sea, provided that all reasonable precautions have been taken for the purpose of preventing or minimizing the discharge.

REF423
CFR 33 151.28 Plan review and revision. (a) An owner or operator of a ship to which this subpart applies must review the shipboard oil pollution emergency plan annually and submit a letter to Commandant (CG-5431) certifying that the review has been completed. This review must occur within 1 month of the anniversary date of Coast Guard approval of the plan. (b) The owner or operator shall submit any plan amendments to Commandant (CG-5431) for information or approval. (c) The entire plan must be resubmitted to Commandant (CG-5431) for reapproval 6 months before the end of the Coast Guard approval period identified in § 151.27(e) of this subpart. (d) A record of annual review and changes to the plan must be maintained in the last appendix of section six of the plan. (e) Except as provided in paragraph (f) of this section, revisions must receive prior approval by the Coast Guard before they can be incorporated into the plan. (f) Revisions to the seventh section of the plan and the appendices do not require approval by the Coast Guard. The Coast Guard shall be advised and provided a copy of the revisions as they occur. [CGD 93–030, 59 FR 51342, Oct. 7, 1994, as amended by CGD 96–026, 61 FR 33665, June 28, 1996; USCG–2008–0179, 73 FR 35014, June 19, 2008]

REF428
33 CFR 155.450 Placard. (a) A ship, except a ship of less than 26 feet in length, must have a placard of at least 5 by 8 inches, made of durable material fixed in a conspicuous place in each machinery space, or at the bilge and ballast pump control station, stating the following: DISCHARGE OF OIL PROHIBITED The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste into or upon the navigable waters of the United States, or the waters of the contiguous zone, or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States, if such discharge causes a film or discoloration of the surface of the water or causes a sludge or emulsion beneath the surface of the water. Violators are subject to substantial civil penalties and/or criminal sanctions including fines and imprisonment. (b) Existing stocks of placards may be used for the life of the placard. (c) The placard required by paragraph (a) or (b) of this section must be printed in the language or languages understood by the crew. [CGD 75–124a, 48 FR 45715, Oct. 6, 1983, as amended by CGD 93–054, 58 FR 62262, Nov. 26, 1993]

REF440
33 CFR 156.115 Person in charge: Limitations. (a) No person may serve as the person in charge of transfer operations on more than one vessel at a time during transfers between vessels or between two or more vessels and a facility unless authorized by the COTP. (b) No person may serve as the person in charge of both a vessel and a facility during transfer operations unless authorized by the COTP. [CGD 75–124, 45 FR 7177, Jan. 31, 1980, as amended by CGD 86–034, 55 FR 36255, Sept. 4, 1990]

REF539
Rescue equipment for a pumproom, or any space that may contain contaminated or oxygen-deficient air, includes a self-contained breathing apparatus, a harness, and a lifeline that is longer than twice the depth of the pumproom. Also. have someone standby outside the space being entered. To remember the signals for using a lifeline, recall the word "OATH" that stands for: O= OK-I pull. A = Advance -feed me slack - 2 pulls . T = Take up -retrieve slack - 3 pulls. H = Help - 4 pulls .

REF540
46 CFR 77.30-5 46 CFR 96-30-5 Rescue equipment for a pumproom, or any space that may contain contaminated or oxygen-deficient air, includes a self-contained breathing apparatus, a harness, and a lifeline that is longer than twice the depth of the pumproom. Also. have someone standby outside the space being entered. To remember the signals for using a lifeline, recall the word "OATH" that stands for: O= OK-I pull. A = Advance -feed me slack - 2 pulls . T = Take up -retrieve slack - 3 pulls. H = Help - 4 pulls .

REF573
46 CFR 31.25; 46 CFR Parts 42, 44, and 45. 31.25–1 Load lines required—TB/ OCL. All tank vessels of 150 gross tons or over, or 79 feet in length or greater, navigating the oceans, coastwise waters, and Great Lakes are subject to the regulations in parts 42 to 45, inclusive, subchapter E (Load Lines), of this chapter, as applicable.

REF609

33 CFR 151.25 Oil Record Book. (a) Each oil tanker of 150 gross tons and above, ship of 400 gross tons and above other than an oil tanker, and manned fixed or floating drilling rig or other platform shall maintain an Oil Record Book Part I (Machinery Space Operations). An oil tanker of 150 gross tons and above or a non oil tanker that carries 200 cubic meters or more of oil in bulk, shall also maintain an Oil Record Book Part II (Cargo/Ballast Operations). (b) An Oil Record Book printed by the U.S. Government is available to the masters or operators of all U.S. ships subject to this section, from any Coast Guard Sector Office, Marine Inspection Office, or Captain of the Port Office. (c) The ownership of the Oil Record Book of all U.S. ships remains with the U.S. Government. (d) Entries shall be made in the Oil Record Book on each occasion, on a tank to tank basis if appropriate, whenever any of the following machinery space operations take place on any ship to which this section applies— (1) Ballasting or cleaning of fuel oil tanks; (2) Discharge of ballast containing an oily mixture or cleaning water from fuel oil tanks; (3) Disposal of oil residue; and (4) Discharge overboard or disposal otherwise of bilge water that has accumulated in machinery spaces. (e) Entries shall be made in the Oil Record Book on each occasion, on a tank to tank basis if appropriate, whenever any of the following cargo/ ballast operations take place on any oil tanker to which this section applies— (1) Loading of oil cargo; (2) Internal transfer of oil cargo during voyage; (3) Unloading of oil cargo; (4) Ballasting of cargo tanks and dedicated clean ballast tanks; (5) Cleaning of cargo tanks including crude oil washing; (6) Discharge of ballast except from segregated ballast tanks; (7) Discharge of water from slop tanks; (8) Closing of all applicable valves or similar devices after slop tank discharge operations; (9) Closing of valves necessary for isolation of dedicated clean ballast tanks from cargo and stripping lines after slop tank discharge operations; and (10) Disposal of oil residue. (f) Entries shall be made in the Oil Record Book on each occasion, on a tank-to-tank basis if appropriate, whenever any of the following operations take place on a fixed or floating drilling rig or other platform to which this section applies— (1) Discharge of ballast or cleaning water from fuel oil tanks; and (2) Discharge overboard of platform machinery space bilge water. (g) In the event of an emergency, accidental or other exceptional discharge of oil or oily mixture, a statement shall be made in the Oil Record Book of the circumstances of, and the reasons for, the discharge. (h) Each operation described in paragraphs (d), (e) and (f) of this section shall be fully recorded without delay in the Oil Record Book so that all the entries in the book appropriate to that operation are completed. Each completed operation shall be signed by the person or persons in charge of the operations concerned and each completed page shall be signed by the master or other person having charge of the ship. (i) The Oil Record Book shall be kept in such a place as to be readily available for inspection at all reasonable times and shall be kept on board the ship. (j) The master or other person having charge of a ship required to keep an Oil Record Book shall be responsible for the maintenance of such record. (k) The Oil Record Book for a U.S. ship shall be maintained on board for not less than three years. (l) This section does not apply to a barge or a fixed or floating drilling rig or other platform that is not equipped to discharge overboard any oil or oily mixture. (m) This section does not apply to a fixed or floating drilling rig or other platform that is operating in compliance with a valid National Pollutant Discharge Elimination System (NPDES) permit. (Approved by the Office of Management and Budget under control number 1625–0009) [CGD 75–124a, 48 FR 45709, Oct. 6, 1983; 48 FR 54977, Dec. 8, 1983, as amended by CGD 88– 002A, 55 FR 18582, May 2, 1990; USCG–2000– 7641, 66 FR 55571, Nov. 2, 2001; USCG–2006–25150, 71 FR 39209, July 12, 2006; USCG–2006–25556, 72 FR 36328, July 2, 2007]

REF615
The displacement or displacement tonnage of a ship is its weight based on the amount of water its hull displaces at varying loads. It is measured indirectly using Archimedes' principle by first calculating the volume of water displaced by the ship then converting that value into weight displaced. Traditionally, various measurement rules have been in use, giving various measures in long tons. Today, metric tonnes are more used. Ship displacement varies by a vessel's degree of load, from its empty weight as designed (known as "Lightweight tonnage" to its maximum load. Numerous specific terms are used to describe varying levels of load and trim, detailed below. Ship displacement should not be confused with measurements of volume or capacity typically used for commercial vessels, such as net tonnage, gross tonnage, or deadweight tonnage.

REF839
Center of Gravity: That point at which all the vertically downward forces of weight are considered to be concentrated; the center of the mass of the vessel.

REF851
The angle of list is the degree to which a vessel heels (leans or tilts) to either port or starboard at equilibrium—with no external forces acting upon it. Listing is caused by the off-centerline distribution of weight aboard due to uneven loading or to flooding.

REF852
Angle of loll is the state of a ship that is unstable when upright (i.e. has a negative metacentric height) and therefore takes on an angle of heel to either port or starboard. When a vessel has negative metacentric height (GM) i.e., is in unstable

equilibrium, any external force applied to the vessel will cause it to start heeling. As it heels, the moment of inertia of the vessel's waterplane (a plane intersecting the hull at the water's surface) increases, which increases the vessel's BM (distance from the centre of Buoyancy to the Metacenter). Since there is relatively little change in KB (distance from the Keel to the centre of Buoyancy) of the vessel, the KM (distance from Keel to the Metacentre) of the vessel increases. At some angle of heel (say 10°), KM will increase sufficiently equal to KG (distance from the keel to the centre of gravity), thus making GM of vessel equal to zero. When this occurs, the vessel goes to neutral equilibrium, and the angle of heel at which it happens is called angle of loll. In other words, when an unstable vessel heels over towards a progressively increasing angle of heel, at a certain angle of heel, the centre of buoyancy (B) may fall vertically below the centre of gravity (G). Angle of list should not be confused with angle of loll. Angle of list is caused by unequal loading on either side of centre line of vessel. Although a vessel at angle of loll does display features of stable equilibrium, this is a dangerous situation and rapid remedial action is required to prevent the vessel from capsizing. It is often caused by the influence of a large free surface or the loss of stability due to damaged compartments. It is different from list in that the vessel is not induced to heel to one side or the other by the distribution of weight, it is merely incapable of maintaining a zero heel attitude.

REF855
Down by the head, Down by the stern, On even keel. These expressions mean: 1.The draught forward exceeds the draught aft. Such a “trim” will have a detrimental effect upon the ship’s speed and steering. 2.The draught aft exceeds the draught forward. In most cases a certain drag is preferable in connection with the steering of the ship. Too much drag may result in loss of speed. Ships sailing in ballast may need to be trimmed by the stern 1 to 1.5 metres so that the propeller will be sufficiently immersed, say at least two thirds of the diameter, otherwise the power developed may be wasted.