



Deck General – Safety

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The tankship Northland is loaded as shown in table BL-0028 below. Use the salmon colored pages in the Stability Data Reference Book to determine the sagging numeral.

22.44 numeral

Illustrations: BL0028_WM_090622
See REF258

The tankship Northland is loaded as shown in table BL-0027 below. Use the salmon colored pages in the Stability Data Reference Book to determine the sagging numeral.

29.70 numeral

Illustrations: BL0027WM
See REF257

The tankship Northland is loaded as shown in table BL-0026 below. Use the salmon colored pages in the Stability Data Reference Book to determine the sagging numeral.

78.98 numeral

Illustrations: BL0026WM
See REF257

The tankship Northland is loaded as shown in table BL-0025 below. Use the salmon colored pages in the Stability book to determine the hogging numeral.

95.70 numeral

Illustrations: BL0025WM
See REF257

The tankship Northland is loaded as shown in table BL-0024 below. Use the salmon colored pages in the Stability Data Reference Book to determine the hogging numeral.

52.79 numeral

Illustrations: BL0024WM
See REF257

The tankship Northland is loaded as shown in table BL-0023 below. Use the salmon colored pages in the Stability Data Reference Book to determine the hogging numeral

79.23 numeral

Illustrations: BL0023WM
See REF257

The tankship Northland is loaded as shown in table BL-0002 below. Use the salmon colored pages in the Stability Data Reference Book to determine the sagging numeral.

31.97 numeral

Illustrations: BL0002WM
See REF257

The tankship Northland is loaded as shown in table BL-0014 below. Use the salmon colored pages in the Stability Data Reference Book to determine the sagging numeral.

91.92 numeral

Illustrations: BL0014WM
See REF257

The tankship Northland is loaded as shown in table BL-0001 below. Use the salmon colored pages in the Stability Data Reference Book to determine the hogging numeral.

91.40 numeral

Illustrations: BL0001WM
See REF257

The tankship Northland is loaded as shown in table BL-0009 below. Use the salmon colored pages in the Stability Data Reference Book to determine the hogging numeral.

43.19 numeral

Illustrations: BL0009WM
See REF257

The tankship Northland is loaded as shown in table BL-0004 below. Use the salmon colored pages in the Stability Data Reference Book to determine the hogging numeral.

49.73 numeral

Illustrations: BL0004WM
See REF257

The tankship Northland is loaded as shown in table BL-0003 below. Use the salmon colored pages in the Stability Data Reference to determine the sagging numeral.

78.29 numeral

Illustrations: BL0003WM
See REF257

You are loading a cargo tank on your container ship. The tank displays the red label as shown in illustration D023DG below. Which statement is TRUE?

The tank contains propylene.

Illustrations: D023DG_WM_072420
See REF150

On a hydrocarbon flammability chart the line which extends from 0% to 21.8% oxygen, lying tangent to the flammability range, is called the _____.

critical dilution line

Illustrations: FLAMMABILITY DIAGRAM
See REF241

A lot of special cargo as shown in illustration D042DG below is to be loaded aboard your vessel. You examine one of the cartons of the lot shown. Assuming no broken stowage what is the total cubic space the consignment will occupy?

58 cubic feet (1.7 cubic meters)

Illustrations: D042DG_WM_052316

A lot of special cargo of similar cartons, as shown in illustration D042DG below, is to be loaded. What is the weight of the consignment?

1250 pounds

Illustrations: D042DG_WM_052316

A lot of special cargo of similar cartons as shown in illustration D042DG below is to be loaded. What is the total cubic capacity the consignment will occupy if you assume 10% broken stowage?

65 cubic feet (2.0 cubic meters)

Illustrations: D042DG_WM_052316

A case received for shipment is marked as shown in illustration D043DG below. Which of the following is the portion of the symbol indicated by the letter A?

a stowage sequence marking

Illustrations: D043DG_WM_082918

A case received for shipment has the markings shown in illustration D043DG below. Each carton measures 13" X 15" X 23". What is the total cubic capacity the entire consignment will occupy if you assume 10% broken stowage?

857 cubic feet (24 cubic meters)

Illustrations: D043DG_WM_082918

A case received for shipment has the markings shown in illustration D043DG below. Each carton measures 13" X 15" X 23". Ignoring broken stowage what is the total cubic capacity the entire consignment will occupy?

779 cubic feet (22 cubic meters)

Illustrations: D043DG_WM_082918

Which piece(s) of equipment is/are required to "twin-up" 30-ton pedestal cranes aboard a crane vessel?

Equalizing beam

Illustrations: SPREADERBAR_WM, SPREADER2_WM

Which statement(s) is/are TRUE concerning crane cargo operations?

Cargo handlers must be outfitted with adequate protection from personal injury.

Do not exceed rated load capacity of crane and container spreader or slings.

During any cargo handling operation, the safety of personnel is paramount.

All of the above.

Illustrations: SPREADERBAR_WM, SPREADER2_WM

A spreader bar is used to _____.

protect the upper part of a load

Illustrations: SPREADERBAR_WM, SPREADER2_WM

Which piece(s) of equipment is/are required to "twin-up" 30-ton pedestal cranes aboard a crane vessel?

Equalizing beam

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Illustrations: SPREADERBAR_WM, SPREADER2_WM

A spreader bar is used to _____.
protect the upper part of a load

Illustrations: SPREADERBAR_WM, SPREADER2_WM

What is the maximum weight the 30 ton capacity pedestal cranes shown in illustration D049DG can lift in the twin mode?
60 tons

Illustrations: D049DG_WM_012814

Which of the following is/are the component(s) of a twin crane set as shown in illustration D047DG?
Crane house assembly
Foundation assembly
Turntable assembly
All of the above.

Illustrations: D047DG_WM_012814

Which of the following is/are the component(s) of a twin crane set as shown in illustration D047DG?
Hook block assembly
Boom assembly
Operator's cab
All of the above.

Illustrations: D047DG_WM_012814

Which of the following is/are the optional component(s) of a twin crane set as shown in illustration D047DG?
Rider block tagline system

Illustrations: D047DG_WM_012814

The 30 ton capacity pedestal cranes shown in the illustration D047DG can lift a maximum weight of how many tons in the single mode?
30 tons

Illustrations: D047DG_WM_012814

What is the maximum weight the 30 ton capacity pedestal cranes shown in illustration D051DG can lift when married together in twin with the other pair of cranes at the opposite end of the hatch?
120 tons

Illustrations: D051DG_WM_052316

What does item "K" refer to in illustration D045DG of a 30-ton pedestal crane?
Rider block taglines

Illustrations: D045DG_WM_082918, D045DG_2_WM

What does item "G" refer to in illustration D045DG of a 30-ton pedestal crane?
Turntable

Illustrations: D045DG_WM_082918, D045DG_2_WM

What does item "E" refer to in illustration D045DG of a 30-ton pedestal crane?

Tagline

Illustrations: D045DG_WM_082918, D045DG_2_WM

What does item "A" refer to in illustration D045DG of a 30-ton pedestal crane?

Cargo hoist falls

Illustrations: D045DG_WM_082918, D045DG_2_WM

What does item "C" refer to in illustration D045DG of a 30-ton pedestal crane?

Rider block

Illustrations: D045DG_WM_082918, D045DG_2_WM

See REF180

What does item "D" refer to in illustration D045DG of a 30-ton pedestal crane?

Hook block

Illustrations: D045DG_WM_082918, D045DG_2_WM

See REF181

What does item "G" refer to in illustration D045DG of a 30-ton pedestal crane?

Turntable

Illustrations: D045DG_WM_082918, D045DG_2_WM

What does item "E" refer to in illustration D045DG of a 30-ton pedestal crane?

Tagline

Illustrations: D045DG_WM_082918, D045DG_2_WM

What does item "A" refer to in illustration D045DG of a 30-ton pedestal crane?

Cargo hoist falls

Illustrations: D045DG_WM_082918, D045DG_2_WM

What does item "C" refer to in illustration D045DG of a 30-ton pedestal crane?

Rider block

Illustrations: D045DG_WM_082918, D045DG_2_WM

See REF180

What does item "D" refer to in illustration D045DG of a 30-ton pedestal crane?

Hook block

Illustrations: D045DG_WM_082918, D045DG_2_WM

See REF181

What does item "K" refer to in illustration D045DG of a 30-ton pedestal crane?

Rider block taglines

Illustrations: D045DG_WM_082918, D045DG_2_WM

The signal man assisting the crane operator has his arm extended downwards, forefinger pointing down, and moves his hand in small horizontal circles. This is the signal to _____.

lower

Illustrations: CRANESIGNAL_WM

The signal man assisting a crane operator has his arm extended, thumb pointing downwards, flexing fingers in and out. This is the signal to _____.

lower the boom and raise the load

Illustrations: CRANESIGNAL_WM

The signal man assisting the crane operator has his forearm vertical, forefinger pointing up, and moves his hand in a small horizontal circle. This is the signal to _____.

hoist

Illustrations: CRANESIGNAL_WM

The signal man assisting the crane operator has his arm extended with the palm down and holds this position rigidly. This is the signal to _____.

stop

Illustrations: CRANESIGNAL_WM

How should you signal the crane operator to stop in an emergency?

Extend arm and move hand rapidly right and left with the palm down.

Illustrations: CRANESIGNAL_WM

How should you signal the crane operator to hoist?

With forearm vertical and forefinger pointing up, move hand in small horizontal circles.

Illustrations: CRANESIGNAL_WM

The signal man assisting a crane operator has his arm extended with his fingers closed and thumb pointing upward. This is the signal to _____.

raise the boom

Illustrations: CRANESIGNAL_WM

How should you signal the crane operator to use the main hoist?

First tap the top of your head with your fist, and then proceed to use regular signals.

Illustrations: CRANESIGNAL_WM

The signal man has both arms extended out, palms down, and is moving his arms back and forth. This is the signal for _____.

emergency stop

Illustrations: CRANESIGNAL_WM

How should you signal the crane operator to lower?

With arm extended downwards and forefinger pointing down, move hand in small horizontal circles.

Illustrations: CRANESIGNAL_WM

The signal man assisting the crane operator has his arm extended, with the thumb pointing up, and is flexing his fingers in and out for as long as the load movement is desired. This is the signal to _____.

raise the boom and lower the load

Illustrations: CRANESIGNAL_WM

How should you signal the crane operator to use the whip line?

First tap your elbow with one hand, and then proceed to use regular signals.

Illustrations: CRANESIGNAL_WM

The signal man assisting the crane operator uses one hand to give any motion signal and places the other hand motionless in front of the hand giving the motion signal. This is the signal to _____.

move slowly

Illustrations: CRANESIGNAL_WM

How should you signal the crane operator to raise the boom and lower the load?

Extend arm with the thumb pointing up, and flex the fingers in and out for as long as the load movement is desired.

Illustrations: CRANESIGNAL_WM

The signal man assisting the crane operator has his arm extended, his fingers closed, and his thumb pointing downward. This is the signal to _____.

lower the boom

Illustrations: CRANESIGNAL_WM

How should you signal the crane operator to move slowly?

Use one hand to give any motion signal, and place the other hand motionless in front of the hand giving the motion signal.

Illustrations: CRANESIGNAL_WM

The signal man assisting the crane operator first taps his elbow with one hand and then proceeds to use regular signals. This is the signal to _____.

use the whip line

Illustrations: CRANESIGNAL_WM

How should you signal the crane operator to stop?

Extend arm with the palm down and hold this position rigidly.

Illustrations: CRANESIGNAL_WM

The signal man assisting the crane operator first taps the top of his head with his fist and then proceeds to use regular signals. This is the signal to _____.

use the main hoist

Illustrations: CRANESIGNAL_WM

How should you signal the crane operator to dog everything?

Clasp hands in front of your body.

Illustrations: CRANESIGNAL_WM

The signal man assisting the crane operator has one hand occupied and one fist in front of his chest with the thumb pointing outward and is tapping his chest with the heel of his fist. This is the signal to _____.
retract the boom

Illustrations: CRANESIGNAL_WM

How should you signal the crane operator to lower the boom?
With arm extended and fingers closed, point thumb downward.

Illustrations: CRANESIGNAL_WM

The signal man assisting the crane operator has his hands clasped in front of his body. This is the signal to _____.
dog everything

Illustrations: CRANESIGNAL_WM

How should you signal the crane operator to swing?
Extend arm and point finger in the direction to move the boom.

Illustrations: CRANESIGNAL_WM

The signal man assisting the crane operator has his arm extended and is pointing his finger in the direction to move the boom. This is the signal to _____.
swing

Illustrations: CRANESIGNAL_WM

How should you signal the crane operator to raise the boom?
Extend arm with fingers closed and point thumb upward.

Illustrations: CRANESIGNAL_WM

How should you signal the crane operator to lower the boom and raise the load?
Extend arm with thumb pointing downward and flex fingers in and out.

Illustrations: CRANESIGNAL_WM

Given a dry bulb temperature of 78°F and wet bulb temperature of 66.5°F, the dew point is _____. illustration
D008DG
59.0°F

Illustrations: D008DG_WM_012814, D008DG_WM_1991

Using the available references, if the dry bulb temperature is 91° and the wet bulb temperature is 87°, what is the relative humidity in a cargo hold? illustration D008DG
85 (%)

Illustrations: D008DG_WM_012814, D008DG_WM_1991
See REF214

Using the available references, if the dry bulb temperature is 55°F (13°C) and the wet bulb is 50°F (10°C), what is the relative humidity? illustration D008DG
82 (%)

Illustrations: D008DG_WM_012814, D008DG_WM_1991

See REF205

Using the available references, if the dry bulb temperature is 76° and the wet bulb temperature is 59°, what is the relative humidity in a cargo hold? illustration D008DG

35 (%)

Illustrations: D008DG_WM_012814, D008DG_WM_1991

See REF208

Using the available references, if the dry bulb temperature is 77° and the wet bulb temperature is 69°, what is the relative humidity in a cargo hold? illustration D008DG

67 (%)

Illustrations: D008DG_WM_012814, D008DG_WM_1991

See REF210

Using the available references, if the dry bulb temperature is 80°F (27°C) and the wet bulb temperature is 70°F (21°C), what is the relative humidity in a cargo hold? illustration D008DG

61 (%)

Illustrations: D008DG_WM_012814, D008DG_WM_1991

See REF211

Given a dry bulb temperature of 78°F and wet bulb temperature of 66.5°F, the dew point is _____. illustration D008DG

59.0°F

Illustrations: D008DG_WM_012814, D008DG_WM_1991

Using the available references, if the dry bulb temperature is 85° and the wet bulb temperature is 73°, what is the relative humidity in a cargo hold? illustration D008DG

56 (%)

Illustrations: D008DG_WM_012814

See REF213

Using the available references, if the dry bulb temperature is 91° and the wet bulb temperature is 87°, what is the relative humidity in a cargo hold? illustration D008DG

85 (%)

Illustrations: D008DG_WM_012814, D008DG_WM_1991

See REF214

Using the available references determine the dew point when the dry bulb temperature is 74°F (23°C) and the wet bulb temperature is 60°F (16°C). illustration D008DG

50°F

Illustrations: D008DG_WM_012814

See REF204

Using the available references, if the dry bulb temperature is 92° and the wet bulb temperature is 85°, what is the relative humidity in a cargo hold? illustration D008DG

75 (%)

Illustrations: D008DG_WM_012814

See REF215

Using the available references, if the dry bulb temperature is 55°F (13°C) and the wet bulb is 50°F (10°C), what is the relative humidity? illustration D008DG

82 (%)

Illustrations: D008DG_WM_012814, D008DG_WM_1991

See REF205

Using the available references, if the dry bulb temperature is 98° and the wet bulb temperature is 87°, what is the relative humidity in a cargo hold? illustration D008DG

64 (%)

Illustrations: D008DG_WM_012814

See REF216

Using the available references, if the dry bulb temperature is 58° and the wet bulb temperature is 53°, what is the relative humidity in a cargo hold? illustration D008DG

72 (%)

Illustrations: D008DG_WM_012814

See REF206

Using the available references, if the dry bulb temperature is 68° and the wet bulb temperature is 65°, what is the relative humidity in a cargo hold? illustration D008DG

85 (%)

Illustrations: D008DG_WM_012814

See REF207

Using the available references, if the dry bulb temperature is 76° and the wet bulb temperature is 59°, what is the relative humidity in a cargo hold? illustration D008DG

35 (%)

Illustrations: D008DG_WM_012814, D008DG_WM_1991

See REF208

Using the available references, if the dry bulb temperature is 76° and the wet bulb temperature is 58°, what is the relative humidity in a cargo hold? illustration D008DG

31 (%)

Illustrations: D008DG_WM_012814

See REF209

Using the available references, if the dry bulb temperature is 77° and the wet bulb temperature is 69°, what is the relative humidity in a cargo hold? illustration D008DG

67 (%)

Illustrations: D008DG_WM_012814, D008DG_WM_1991

See REF210

Using the available references, if the dry bulb temperature is 80°F (27°C) and the wet bulb temperature is 70°F (21°C), what is the relative humidity in a cargo hold? illustration D008DG

61 (%)

Illustrations: D008DG_WM_012814, D008DG_WM_1991

See REF211

Using the available references, if the dry bulb temperature is 84° and the wet bulb temperature is 81°, what is the relative humidity in a cargo hold? illustration D008DG

88 (%)

Illustrations: D008DG_WM_012814

See REF212

Where will the complete details of a crude oil washing system aboard your vessel, including the operating sequences and procedures, design characteristics, a description of the system, and required personnel be found?

Crude Oil Washing Operations and Equipment Manual

See REF168

What is the primary hazard of liquefied petroleum gas and liquefied natural gas?

flammability

See REF017

Grade D combustible liquids have a maximum flash point of _____.

149°F

See REF017

The vapor pressure of a gas is defined as the pressure necessary to keep it in what state?

liquified state

See REF017

The fitting at the end of a cargo line in a tank that allows suction to be taken close to the bottom of a tank is a _____.

bell-mouth

See REF176

What is the first action you should take to prevent oil from escaping into the sea when ballasting through the cargo piping system?

start the cargo pump, then open sea suction valves

What is LEAST likely to be used to strip a cargo tank?

Centrifugal pump

Which characteristic is an advantage of a butterfly valve as compared to a gate valve?

Quick operation

The head block is located _____.

at the head of the boom

The boom indicator tells the operator at what angle the boom is compared to the _____.

horizontal position of the boom

Which statement(s) is/are TRUE concerning crane cargo operations?

Never exceed crane manufacturer's limits concerning the safe working loads of cargo jibs.

The electrical components for each single crane are installed in its _____.

turntable

machinery base

crane house

All of the above.

The wire rope used for cargo handling on board your vessel has a safe working load of eight tons. It shall be able to withstand a breaking test load of _____.

40 tons

In relation to cargo gear, what does "SWL" mean?

Safe working load

The best way to determine if a load is within maximum lift limits is to use _____.

a load weight indicator

You are in a tropical port. The refrigeration machinery on a container loaded with air-cooled fruit fails. It cannot be repaired for 18 to 24 hours. Which step should you take to reduce the temperature rise and spoilage of the fruit?

Shade the container and periodically hose it down

The securing systems for containers were developed to prevent container movement during which ship motion?

Roll

You are on a multiple-product chemical tanker and will carry cargoes of allyl alcohol, benzene, and propanolamine. Which of the following is true?

Allyl alcohol is incompatible with propanolamine but both are compatible with benzene.

The internal volume of a cargo hold measured from the inside faces of the cargo battens, the lower side of the deck beams, and the top of the tank top ceiling is known as the _____.

bale cubic

See REF134

Which material should NOT be used to secure cargo on deck for a voyage?

Fiber rope

When fruit is carried as refrigerated cargo, the most frequent cause of its being infected at the discharge port is _____.

improper cleaning of the cargo spaces

Which statement about the carriage of coal is true?

Freshly worked coal is more dangerous than weathered coal.

You are going to load bales of wool having a stowage factor of 96 in #3 lower hold which has a bale cubic of 84,000. How many tons of wool can be stowed in the compartment?

875

See REF198

Which of the following describes heavy fuel oils when they have been spilled?

they are less harmful to sea life than lighter oils

While loading bulk oil, you notice oil on the water near the barge. Which of the following actions should you carry out FIRST?

Stop loading

See REF224

You have berthed in a port area with other tank vessels. What signal is displayed by a vessel to indicate it is transferring flammable or combustible liquid cargo?

A red light visible all around the horizon

See REF230

U.S. regulations require that tank vessels handling grade B liquids shall have their cargo pumps separated from all sources of vapor ignition by which of the following?

gas tight bulkheads

Under which of the following conditions will the blowers of an inert gas generation system aboard a tanker remain operational?

The tank atmosphere above 8% oxygen

What is the primary function of a flame screen on a tank vessel?

permits the passage of vapor but not of flame

See REF218

When providing first aid to a victim of gas poisoning, what is the MOST important symptom to check for?

suspension of breathing

An on-board monitoring system, using level sensors permanently installed in each vessel compartment, will have a high level alarm set at not more than _____.

95% of compartment capacity

See REF165

The deck water seal of the inert gas system _____.

prevents the backflow of hydrocarbon gasses into nonhazardous areas

See REF165

An inert gas system is designed to reduce the possibility of tank explosions by _____.

reducing the oxygen concentration below levels necessary for combustion

See REF165

While discharging cargo, the cargo tank pressures are falling too low. What can the Cargo Officer do to correct the problem?

Slow the discharge rate.

Ask the terminal to send more vapor to the ship.

Stop the discharge rate.

All of the above.

See REF165

You are on a cargo vessel carrying portable tanks of dangerous cargoes in bulk. Which statement is TRUE?

All electrical equipment within 10 feet horizontally must be explosion proof or intrinsically safe.

What is NOT a requirement for the preparation of used, gasoline-propelled cars if they are to be carried as ordinary cargo and not as hazardous cargo?

The fuel tank must be inerted with CO₂.

Air compressors are NOT permitted in which space(s) on a tank barge carrying grade A cargo?

A cargo handling room

A space in which cargo hose is stored

An enclosed space containing cargo piping

All of the above.

Grade E combustible liquids are those having flash points of _____.

150°F or greater

See REF017

According to the Chemical Data Guide, what is the Reid Vapor Pressure of tert-butylamine?

11 (psig)

See REF017

Which statement is TRUE concerning toluene?

It is an aromatic hydrocarbon.

See REF150

Your containership has a container displaying a hazardous cargo placard. The placard has the number 2224 on it. This indicates that it is carrying what cargo?

Benzonitrile

See REF150

Severe exposure to chlorine gas can be fatal. Chlorine gas is primarily a _____.

respiratory irritant

See REF150

What is the Reid vapor pressure of allyl chloride?

10.3 (psia)

See REF150

The flash point of a product is 100°F. What can happen if it is heated above 110°F?

It may burn and explode if an ignition source is present.

See REF171

The term "load on top" is used on many crude oil carriers, what is this a method for?

the loading of new cargo into a decanted slop tank as a procedure to minimize pollution

According to U.S. regulations, which of the following conditions would disqualify a nonmetallic hose as being suitable for use in transferring oil?

Evidence of internal or external deterioration.

See REF250

Which refers to the depth of a petroleum product in a tank?

Innage

How should pinching of the cargo hose between the vessel and the dock be prevented?

adjusting the hose supports

Which of the following lashing gear used aboard Ro-Ro vessels should be maintained when not in use?

Webbing

Wire rope

Chain

All of the above.

Which variable factor affects the initial lashing requirements aboard Ro-Ro vessels?

Size and weight of vehicle/cargo unit

What is/are the advantage(s) of using web lashing on light vehicles aboard Ro-Ro vessels?

Flexible

Light and easy to handle

Good working life

All of the above.

Which element(s) should be taken into account in the preparation of the "Cargo Securing Manual"?

Geographical area of the voyage

Weight of the vehicles

Dynamic forces under adverse weather conditions

All of the above.

See REF256

The most important safety consideration during loading or discharge aboard a Ro-Ro vessel is _____.

the thorough ventilation of all cargo spaces

A cargo of 10,000 barrels of gasoline is loaded at a temperature of 90°F, and a cargo temperature of 55°F, is expected on this voyage. It has a coefficient of expansion of .0006. How many barrels would you expect to discharge at your destination?

9790

Your ship has loaded 8,000 barrels of gasoline at a cargo temperature of 36°C (97°F). API gravity is 54°. The volume correction factor (VCF) is .0006. You are bound for New Jersey from Ecuador. How many gallons would you expect to unload if the cargo temperature is 55°F at the discharge port?

327533

What is meant by "thieving" a petroleum cargo?

Determining the amount of water (if any) in each cargo tank

See REF253

When selecting the fuel oil tanks for the "burn-out" of bunkers during a voyage consideration of all of the following must be taken with the EXCEPTION of _____.

flashpoint

Which credential enables a person to serve as person in charge of a tank barge which is transferring cargo?

Certified Tankerman

What is NOT a requirement for storage batteries on tank barges?

They may be located in cargo handling rooms

On a tank barge constructed on or after July 1, 1951, what is the required vent size for each cargo tank?

not less than 2.5 inches

See REF507

On an inspection of your tankship you notice that there are no portable fire extinguishers in the pumproom. To comply with regulations, you _____.

should arrange to have a B-II extinguisher placed in the lower pumproom

Which statement is TRUE concerning buoyant work vests aboard tank vessels?

They must be used only under supervision of a designated ship's officer.

What certificate verifies that a liquefied gas tanker complies with the requirements with regard to their structure, equipment, fittings, arrangements, and materials?

Cargo Ship Safety Construction

What is an advantage of the spherical type containment system?

the design does not require a full liquid tight secondary barrier

Fuel oil tank vents are fitted with a screen which will stop _____.

flames on deck from entering the tank vent

See REF238

When planning the loading or discharging of a VLCC (100,000 DWT+) what is the most important consideration?
Limits of the bending moments

Before welding is permitted on a fuel tank, it must be certified or declared as which of the following?
safe for hot work
See REF024

The regulations governing the sleeping accommodations of a cargo vessel are found in _____.
46 CFR subchapter I

On cargo vessels, the discharge of the required quantity of carbon dioxide into any "tight" space shall be completed within _____.
2 minutes

The letter and number symbols, such as B-II, used to classify portable fire extinguishers indicate the _____.
class of fire and size of the extinguisher

On a vessel making a voyage more than 48 hours long, regulations require that _____.
the entire steering gear be tested within 12 hours prior to departure

The primary hazard of liquefied petroleum gas and liquefied natural gas is _____.
flammability

What is the most common liquified gas cargo?
ammonia

How is the amount of LFG that may be loaded into a given tank determined?
filling to the maximum level indicated on the liquid level gauging device

The complete details of a crude oil washing system aboard your vessel, including the operating sequences and procedures, design characteristics, a description of the system, and required personnel will be found in the _____.
Crude Oil Washing Operations and Equipment Manual
See REF161

In controlling pollution, which action should be taken after all dirty ballast has been transferred to the slop tank and prior to discharge through the oily water separator?
The slops should be allowed time to settle.

Which of the following defines flammable liquids for the purpose of U.S. regulations?
liquids that give off flammable vapors at or below 80°F (27°C)

Most liquified gas cargoes are flammable, and are carried at or close to their boiling point. What will happen if they are released into the atmosphere?
burn, if it's within its flammable range and has an ignition source
See REF172

What does the term "oil", as used in the U.S. regulations mean?
petroleum oil of any kind
See REF017

The system of valves and cargo lines in the bottom piping network of a tank vessel that connects one section of cargo tanks to another section is called a _____.
crossover

A relief valve for a cargo pump is generally installed _____.

between the pump and discharge valve

See REF177

On what type of pump would you find an impeller?

Centrifugal

What is an advantage of a gate valve over a butterfly valve?

Less frequent maintenance

A band or collar on the top end of a boom to which the topping lift, midships guy, and outboard guys are secured, is called the _____.

spider band

Which safety precaution(s) should be observed during crane operations?

Using the proper slings or other lifting devices during cargo operations

Which of the following statements is TRUE regarding crane operations?

The crane operators and signalman must be familiar with the correct hand signals.

Which statement(s) is/are FALSE concerning crane cargo operations?

Cargo loaded into vehicles and/or containers prior to lifting need not be secured.

What describes a tandem crane lift?

Two sets of twin cranes hoisting 120 tons

It is permissible to place an eye splice in wire rope used as cargo gear providing the splice is made using _____.

three tucks with whole strands and two tucks with 1/2 the wire cut from the tucking strand

Which is TRUE of a pelican hook?

can be released while under strain

Which statement concerning the carriage of containers is TRUE?

With tiered containers, a 40-foot container may be stowed on top of two 20-foot containers.

What purpose does a bridge fitting serve when lashing containers?

Restrains the container against horizontal motion

See REF194

You are on a multiple-product chemical tanker and will carry cargoes of isophorone, ethylenediamine, and creosote. Which of the following is TRUE?

Isophorone is incompatible with ethylenediamine but may be stowed adjacent to creosote.

All of these cargoes are incompatible.

Ethylenediamine is compatible with isophorone but both are incompatible with creosote.

All of these cargoes are compatible.

To determine the weight capacity of a deck in a cargo hold, you would refer to the _____.

deck capacity plan

The internal volume of a cargo hold measured from the inside of the side shell, the underside of the deck, and the tank top is known as the _____.

grain cubic

See REF134

operation; (b) Transfer hoses and loading arms are long enough to allow the vessel to move to the limits of its moorings without placing strain on the hose, loading arm, or transfer piping system; (c) Each hose is supported to prevent kinking or other damage to the hose and strain on its coupling. (d) Each part of the transfer system is aligned to allow the flow of oil or hazardous material; (e) Each part of the transfer system not necessary for the transfer operation is securely blanked or shut off; (f) The end of each hose and loading arm that is not connected for the transfer of oil or hazardous material is blanked off using the closure devices required by §§ 154.520 and 155.805 of this chapter; (g) The transfer system is attached to a fixed connection on the vessel and the facility except that when a vessel is receiving fuel, an automatic back pressure shutoff nozzle may be used; (h) Each overboard discharge or sea suction valve that is connected to the vessel's transfer or cargo tank system is sealed or lashed in the closed position; except when used to receive or discharge ballast in compliance with 33 CFR Part 157; (i) Each transfer hose has no unrepaired loose covers, kinks, bulges, soft spots, or any other defect which would permit the discharge of oil or hazardous material through the hose material and no gouges, cuts, or slashes that penetrate the first layer of hose reinforcement ("reinforcement" means the strength members of the hose, consisting of fabric, cord and/or metal); (j) Each hose or loading arm in use meets §§ 154.500 and 154.510 of this chapter, respectively; (k) Each connection meets § 156.130; (l) Any monitoring devices required by § 154.525 of this chapter are installed and operating properly; (m) The discharge containment equipment required by § 154.545 of this chapter is readily accessible or deployed as applicable; (n) The discharge containment required by §§ 154.530, 155.310, and 155.320 of this chapter, as applicable, is in place and periodically drained to provide the required capacity; (o) Each drain and scupper is closed by the mechanical means required by § 155.310; (p) All connections in the transfer system are leak free except that a component in the transfer system, such as the packing glands of a pump, may leak at a rate that does not exceed the capacity of the discharge containment provided during the transfer operation; (q) The communications required by §§ 154.560 and 155.785 of this chapter are operable for the transfer operation; (r) The emergency means of shutdown required by §§ 154.550 and 155.780 of this chapter, as applicable, is in position and operable; (s) There is a person in charge on the transferring vessel or facility and the receiving vessel or facility except as otherwise authorized under § 156.115; (t) Each person in charge required by paragraph (s) of this section: (1) Is at the site of the transfer operation and immediately available to the transfer personnel; (2) Has in his or her possession a copy of the facility operations manual or vessel transfer procedures, as appropriate; and (3) Conducts the transfer operation in accordance with the facility operations manual or vessel transfer procedures, as appropriate; (u) The personnel required, under the facility operations manual and the vessel transfer procedures, to conduct the transfer operation: (1) Are on duty; and (2) Conduct the transfer operation in accordance with the facility operations manual or vessel transfer procedures, as appropriate; (v) At least one person is at the site of the transfer operation who fluently speaks the language or languages spoken by both persons in charge; (w) The person in charge of the transfer on the transferring vessel or facility and the person in charge of it on the receiving vessel or facility have held a conference, to ensure that each person in charge understands— (1) The identity of the product to be transferred; (2) The sequence of transfer operations; (3) The transfer rate; (4) The name or title and location of each person participating in the transfer operation; (5) Details of the transferring and receiving systems including procedures to ensure that the transfer pressure does not exceed the maximum allowable working pressure (MAWP) for each hose assembly, loading arm and/or transfer pipe system; (6) Critical stages of the transfer operation; (7) Federal, state, and local rules that apply to the transfer of oil or hazardous material; (8) Emergency procedures; (9) Discharge containment procedures; (10) Discharge reporting procedures; (11) Watch or shift arrangement; (12) Transfer shutdown procedures; and, (13) If the persons use radios, a predetermined frequency for communications during the transfer, agreed upon by both. (v) The person in charge of transfer operations on the transferring vessel or facility and the person in charge of transfer operations on the receiving vessel or facility agree to begin the transfer operation; (y) Between sunset and sunrise the lighting required by §§ 154.570 and 155.790 of this chapter is provided; and (z) For transfer operations between tank barges from sunset to sunrise, lighting is provided as described in § 155.790 of this chapter. (aa) A transfer operation which includes collection of vapor emitted from a vessel's cargo tanks through a venting system not located on the vessel must have the following verified by the person in charge: (1) Each manual valve in the vapor collection system is correctly positioned to allow the collection of cargo vapor; (2) A vapor collection hose or arm is connected to the vessel's vapor connection; (3) The electrical insulating device required by § 154.810(g) of this chapter or 46 CFR 39.40–3(c) is fitted between the facility vapor connection and the vessel vapor connection; (4) The initial loading rate and the maximum transfer rate are determined; (5) The maximum and minimum operating pressures at the facility vapor connection are determined; (6) The tank barge overfill control system, if installed, is connected to the facility, tested, and operating properly; (7) The following have been performed not more than 24 hours prior to the start of the transfer operation: (i) Each alarm and automatic shutdown system required by subpart E of part 154 of this chapter and 46 CFR part 39 has been tested and found to be operating properly, and (ii) Analyzers required by § 154.820(a), § 154.824 (d) and (e) of this chapter or 46 CFR 39.40–3(a) have been checked for calibration by use of a span gas; (8) Each vapor recovery hose has no unrepaired loose covers, kinks, bulges, soft spots, or any other defect which would permit the discharge of vapor through the hose material, and no eternal gouges, cuts, or slashes that penetrate the first layer of hose reinforcement; and (9) The oxygen content of the vessel's cargo tanks, if inerted, is at or below 8 percent by volume. (bb) If the transfer operation involves loading oil, as defined in § 151.05 of this chapter, into a cargo tank, the overfill device

required by § 155.480 of this chapter is installed and operating properly. (cc) Smoking is not permitted in the facilities marine transfer area except in designated smoking areas. (dd) Welding, hot work operations and smoking are prohibited on vessels during the transfer of flammable or combustible materials, except that smoking may be permitted in accommodation areas designated by the master. (ee) Each tank level or pressure monitoring device required under 33 CFR 155.490 must be activated and monitored whenever the tank is not actively being subjected to cargo operations. (Approved by the Office of Management and Budget under control number 1625-0039) [CGD 75-124, 45 FR 7177, Jan. 31, 1980, as amended by CGD 88-102, 55 FR 25445, June 21, 1990; CGD 86-034, 55 FR 36255, Sept. 4, 1990; CGD 90-071a, 59 FR 53291, Oct. 21, 1994; CGD 93-056, 61 FR 41461, Aug. 8, 1996; CGD 79-116, 62 FR 25127, May 8, 1997; CG-2001-9046, 67 FR 58524, Sept. 17, 2002; USCG-2006-25150, 71 FR 39210, July 12, 2006]

REF226

Emergency pump control shutdown must stop the flow of oil through the pump. This can be done electrically, pneumatically, mechanically, or by a communication device used for no other purpose .

REF227

153.955 Warning signs during cargo transfer. (a) When transferring cargo while fast to a dock or at anchor in port, the master shall ensure that the tankship displays a warning sign at the gangway facing the shore so that it may be seen from the shore and another warning sign facing outboard toward the water so that it may be seen from the water. (See figure 1). (b) Except as provided in paragraph (f) of this section, each warning sign must have the following legends: (1) Warning. (2) Dangerous Cargo. (3) No Visitors. (4) No Smoking. (5) No Open Lights. (c) Each letter must be block style, black on a white background. (d) Each letter must: (1) Be 7.5 cm (approx. 3 in.) high; (2) Be 5 cm (approx. 2 in.) wide except for "M" and "W" which must be 7.5 cm (approx. 3 in.) wide and the letter "I" which may be 1.3 cm (approx. 1/2 in.) wide; and (3) Have 1.3 cm (approx. 1/2 in.) stroke width. (e) The spacing must be: (1) 1.3 cm (approx. 1/2 in.) between letters of the same word; (2) 5 cm (approx. 2 in.) between words; (3) 5 cm (approx. 2 in.) between lines; and (4) 5 cm (approx. 2 in.) at the borders of the sign. (f) Except as described in §153.1045, the legends "No Smoking" and "No Open Lights" are not required when the cargoes on board the tankship are neither flammable nor combustible.

REF228

33 cfr 156.150 Declaration of inspection.

REF229

46 CFR 56.25-5

REF230

153.953 Signals during cargo transfer. The master shall ensure that: (a) The tankship displays a red flag in the day and a red light at night when transferring cargo while fast to a dock; (b) The tankship displays a red flag when transferring cargo while at anchor; and (c) The red flag or the red light is visible from all sides of the tankship.

REF231

33 CFR 155.780 Emergency shutdown. (a) A tank vessel with a capacity of 250 or more barrels that is carrying oil or hazardous material as cargo must have on board an emergency means to enable the person in charge of a transfer operation to a facility, to another vessel, or within the vessel to stop the flow of oil or hazardous material. (b) The means to stop the flow may be a pump control, a quick-acting, power actuated valve, or an operating procedure. If an emergency pump control is used, it must stop the flow of oil or hazardous material if the oil or hazardous material could siphon through the stopped pump. (c) The means to stop the flow must be operable from the cargo deck, cargo control room, or the usual operating station of the person in charge of the transfer operation. [CGD 86-034, 55 FR 36255, Sept. 4, 1990]

REF232

calibration gas A calibration gas is a reference gas or gas mixture used as comparative standard in the calibration of analytical instruments, like gas analyzers or gas detectors. Therefore, a calibration gas has to be of a precisely defined nature or composition, like zero gas or span gas.

REF233

In essence, calibration gases are used to calibrate and set the gas detectors to ensure they are functioning accurately. The only way to be sure that a gas detector is working correctly is to test it with known calibration gas.M

REF234

Inert gas is principally used to control cargo tank atmospheres and so prevent the formation of flammable mixtures. The primary requirement for an inert gas is low oxygen contents. Most using equipment on fleet ship's is nitrogen generator. Main hazard from nitrogen inerting that this gas has not any odor or color can't easily recognize. The oxygen content of the atmosphere in enclosed spaces may be low several reasons. The inerting is common and planned action on vessel operations. As the amount of available oxygen decreases below the normal 21% by volume breathing tends to become faster and deeper. Symptoms indicating that an atmosphere is deficient in oxygen may give inadequate notice of danger. Most persons would fail to recognize the danger until they were too weak to be able to escape without help. This is especially so when escape involves the exertion of climbing. While individuals vary in susceptibility, all will suffer impairment if the oxygen level falls to 16% by volume. Exposure to an atmosphere containing less than 10% oxygen content by volume inevitably causes unconsciousness. The rapidity of onset of unconsciousness increases as the availability of oxygen diminishes, and death will result unless the victim is removed to the open air and resuscitated. An atmosphere containing less than 5% oxygen by volume causes immediate unconsciousness with no warning other than a grasp for air. If resuscitation is delayed for more than a few minutes, irreversible damage is done to the brain even if life is subsequently restored. Entry into oxygen deficient spaces must never be permitted without breathing apparatus until such spaces have been thoroughly ventilated and test readings indicate an oxygen level of 21% by volume throughout.

REF235

39.20-13 High and low vapor pressure protection for tankships—T/ALL. Each tankship vapor collection system must be fitted with a pressure sensing device that senses the pressure in the main vapor collection line, which: (a) Has a pressure indicator located on the vessel where the cargo transfer is controlled; and (b) Has a high pressure and a low pressure alarm that: (1) Is audible and visible on the vessel where cargo transfer is controlled; (2) Alarms at a high pressure of not more than 90 percent of the lowest pressure relief valve setting in the cargo tank venting system; and (3) Alarms at a low pressure of not less than four inches water gauge (0.144 psig) for an inerted tankship, or the lowest vacuum relief valve setting in the cargo tank venting system for a non-inerted tankship.

REF236

32.53-25 Gas supply—T/ALL. Each inert gas system must be capable of supplying inert gas at a capacity of 125 percent of the combined maximum rated capacities of all cargo pumps which can be simultaneously operated.

REF237

Subpart 39.30—Operations § 39.30-1 Operational requirements— TB/ALL.

REF238

A "Flame Screen" is a single screen of corrosion-resistant wire of at least 30 x 30 mesh or two fitted screens, both of corrosion resistant wire of at least 20 x 20 mesh spaced not less than 1/2 inch or more than 1 1/2 inches apart. 46 CFR 151.03-25. Ullage holes of cargo tanks as well as each tank vent of a tank carrying flammable or combustible liquid must be protected by a flame screen at all times, especially when the tank is open but not gas free. If instructed to remove the flame screen to sound or sample the contents of a tank, be sure to reinstall it correctly and check it carefully to be sure the flame screen has no holes, gaps, or tears in it. If it does, replace it at once! A properly installed and maintained flame screen prevents a spark or flame from passing into a tank or compartment from the outside. Unfortunately, bad painting practices often seal the mesh in vent lines and prevents the tank from venting properly. If the tank cannot vent properly, excess pressure or vacuum may develop and tear or damage the delicate flame screen.

REF239

First Aid Definitions_nf.pdf, first_aid_handbook.pdf, first aid for lpg.pdf

REF240

39.30-1 Operational requirements—

REF241

Inert gas is principally used to control cargo tank atmospheres and so prevent the formation of flammable mixtures. The primary requirement for an inert gas is low oxygen contents. Most using equipment on fleet ship's is nitrogen generator. Main hazard from nitrogen inerting that this gas has not any odor or color can't easily recognize. The oxygen content of the atmosphere in enclosed spaces may be low several reasons. The inerting is common and planned action on vessel operations. As the amount of available oxygen decreases below the normal 21% by volume breathing tends to become faster and deeper. Symptoms indicating that an atmosphere is deficient in oxygen may give inadequate notice of danger. Most persons would fail to recognize the danger until they were too weak to be able to escape without help. This is especially so when escape involves the exertion of climbing. While individuals vary in susceptibility, all will suffer

impairment if the oxygen level falls to 16% by volume. Exposure to an atmosphere containing less than 10% oxygen content by volume inevitably causes unconsciousness. The rapidity of onset of unconsciousness increases as the availability of oxygen diminishes, and death will result unless the victim is removed to the open air and resuscitated. An atmosphere containing less than 5% oxygen by volume causes immediate unconsciousness with no warning other than a grasp for air. If resuscitation is delayed for more than a few minutes, irreversible damage is done to the brain even if life is subsequently restored. Entry into oxygen deficient spaces must never be permitted without breathing apparatus until such spaces have been thoroughly ventilated and test readings indicate an oxygen level of 21% by volume throughout. Flammability diagrams show the control of flammability in mixtures of fuel, oxygen and an inert gas, typically nitrogen. Mixtures of the three gasses are usually depicted in a triangular diagram, known as a ternary plot. Such diagrams are available in the speciality literature.[1][2][3] The same information can be depicted in a normal orthogonal diagram, showing only two substances, implicitly using the feature that the sum of all three components is 100 percent.

REF242

46 CFR 153.527 "Modified question replaced 2-342" A: Incorrect: Two toxic vapors or the pumproom meeting special requirements are required for this product according to 46 CFR 153.526. B: Incorrect: An emergency escape breathing apparatus is required for each crewmember according to 46 CFR 153.527 when carrying this product. C: Correct: Diethylamine does not refer to 46 CFR 153.530; therefore it does not need a containment system made out of stainless steel D: Incorrect: Since allyl alcohol refers to 46 CFR 153.1020, the same as diethylamine, then the piping and venting systems for both products do not have to be separated.

REF243

A. special permit issued by the Coast Guard is required before bulk solid materials that require special handling are loaded. Incorrect Answer. Reference: 46 CFR 148.10 A material listed in Table 148.10 of this section may be transported as a bulk solid cargo on a vessel if it is carried according to this part. A material that is not listed in Table 148.10 of this section, but which is hazardous or a Potentially Dangerous Material (PDM), requires a Special Permit under §148.15 of this part to be transported on the navigable waters of the United States. B. Hazardous materials that require separation must not be handled at the same time. Correct Answer. Reference: 46 CFR 148.120 Materials that are required to be separated during stowage must not be handled at the same time. C. A certification issued by ABS will be accepted as evidence that the vessel complies with all applicable loading regulations. Incorrect Answer. Reference: 46 CFR 148.12 Certificates of loading from the National Cargo Bureau are accepted as evidence of compliance with bulk solid transport regulations. D. The shipping papers can be used in lieu of a Dangerous Cargo Manifest for a vessel carrying solid hazardous materials in bulk. Incorrect Answer. Reference: 46 CFR 148.62 The shipping paper and emergency response information required by §§148.60 and 148.61 of this part must be kept on board the vessel along with the dangerous cargo manifest required by §148.70 of this part.

REF244

46 CFR 32.60–20

REF245

32.60–20 Pumprooms on tank vessels carrying Grade A, B, C, D and/or E liquid cargo—TB/ALL.

REF246

32.55–20 Venting of cargo tanks of tankships constructed on or after July 1, 1951—T/ALL.

REF247

46 CFR § 32.60-20

REF248

46 cfr 32.60–20

REF249

46 CFR 39.30-1

REF250

156.170 Equipment tests and inspections. (a) Except as provided in paragraph (d) of this section, no person may use any equipment listed in paragraph (c) of this section for transfer operations unless the vessel or facility operator, as appropriate, tests and inspects the equipment in accordance with paragraphs (b), (c) and (f) of this section and the equipment is in the condition specified in paragraph (c) of this section. (b) During any test or inspection required by this

section, the entire external surface of the hose must be accessible. (c) For the purpose of paragraph (a) of this section: (1) Each nonmetallic transfer hose must: (i) Have no unrepaired loose covers, kinks, bulges, soft spots or any other defect which would permit the discharge of oil or hazardous material through the hose material, and no gouges, cuts or slashes that penetrate the first layer of hose reinforcement as defined in § 156.120(i). (ii) Have no external deterioration and, to the extent internal inspection is possible with both ends of the hose open, no internal deterioration; (iii) Not burst, bulge, leak, or abnormally distort under static liquid pressure at least 1 1/2 times the maximum allowable working pressure; and (iv) Hoses not meeting the requirements of paragraph (c)(1)(i) of this section may be acceptable after a static liquid pressure test is successfully completed in the presence of the COTP. The test medium is not required to be water. (2) Each transfer system relief valve must open at or below the pressure at which it is set to open; (3) Each pressure gauge must show pressure within 10 percent of the actual pressure; (4) Each loading arm and each transfer pipe system, including each metallic hose, must not leak under static liquid pressure at least 1 1/2 times the maximum allowable working pressure; and (5) Each item of remote operating or indicating equipment, such as a remotely operated valve, tank level alarm, or emergency shutdown device, must perform its intended function. (d) No person may use any hose in underwater service for transfer operations unless the operator of the vessel or facility has tested and inspected it in accordance with paragraph (c)(1) or (c)(4) of this section, as applicable. (e) The test fluid used for the testing required by this section is limited to liquids that are compatible with the hose tube as recommended by the manufacturer. (f) The frequency of the tests and inspections required by this section must be: (1) For facilities, annually or not less than 30 days prior to the first transfer conducted past one year from the date of the last tests and inspections;

REF251

153.955 Warning signs during cargo transfer.

REF252

33 cfr 156.170 Equipment tests and inspections.

REF253

Thieving - Determining the amount of water at the bottom of a tank of oil.

REF254

33 CFR 155.700

REF255

Note: Lashings are considered to be most effective at between 30° and 60° to the deck line. Alternatively, additional lashings may be required. Crossed lashing should, where practical, not be used, as limited restraint against 'tipping' is experienced with this style of securing.

REF256

SOLAS requires vessels that do not carry solid or liquid bulk cargo to be loaded in accordance with the Cargo Securing Manual. IMO MSC/Circ 745 outlines the information required in the Cargo Securing Manual, including the safe working load of fixed and portable securing devices.

REF257

Updated on 10_28_2021

REF258

Updated on 11_14_2022

REF259

$5000 \times .0004$ (expansion) = 2 Differential of Temp : $70^\circ - 60^\circ = 10$ $2 \times 10 = 20$ Net bbls = $5000 - 20 = 4980$ If the Loaded Temp is more then 60° F the Net barrels are less than 5000 If the Loaded Temp is less then 60° F the Net barrels are more than 5000

REF260

$12000 \times .0005$ (expansion) = 6 Differential of Temp : $88^\circ - 60^\circ = 28$. $6 \times 28 = 168$ Net bbls = $12000 - 168 = 11832$ bbls. If the Loaded Temp is more then 60° F the Net barrels are less than 8000 If the Loaded Temp is less then 60° F the Net barrels are more than 8000

REF261

$8000 \times .0005$ (expansion) = 4 Differential of Temp : $60^\circ - 50^\circ = 10$. $4 \times 10 = 40$ Net bbls = $8000 + 40 = 8040$ If the Loaded Temp is more than 60°F the Net barrels are less than 8000 If the Loaded Temp is less than 60°F the Net barrels are more than 8000

REF262

Thiols are used as odorants to assist in the detection of natural gas (which in pure form is odorless), and the "smell of natural gas" is due to the smell of the thiol used as the odorant. Thiols are sometimes referred to as mercaptans.

REF263

Topping off = The final stages of filling a tank as the liquid level approaches the top of the tank.

REF264

46 CFR 153.953. A vessel must display a red flag by day and a red light at night while made fast to a dock. These signals must be visible from all sides of the vessel. While at anchor and transferring cargo, a tank ship must display a red flag.

REF265

The most frequent cause of vessel fires is smoking tobacco products. This is why most fires occur in the living quarters. Cargo oil fires most commonly occur in the pumproom. Keep everything in its proper place. For example, don't let oily rags accumulate anywhere, since they are a major source of spontaneous combustion. Rubber, coal, leather, and metal shavings are other common causes of spontaneous combustion.

REF266

Rollover is a spontaneous rapid mixing process which occurs in large tanks as a result of a density inversion, stratification develops when the liquid layer adjacent to a liquid surface becomes more dense than the layers beneath, due to boil-off of lighter fractions from the cargo.

REF267

Inert gas is produced on board crude oil carriers (above 8,000 tonnes)(from Jan 1, 2016) by using either a flue gas system or by burning kerosene in a dedicated inert gas generator. And The inert gas system is used to prevent the atmosphere in cargo tanks or bunkers from coming into the explosive range.[7] IG keeps the oxygen content of the tank atmosphere below 5% (on crude carriers, less for product carriers and gas tankers), thus making any air/hydrocarbon gas mixture in the tank too rich (too high a fuel to oxygen ratio) to ignite. InertGases is most important during discharging and during the ballast voyage when more hydrocarbon vapour is likely to be present in the tank atmosphere. Inert gas can also be used to purge the tank of the volatile atmosphere in preparation for gas freeing - replacing the atmosphere with breathable air - or vice versa.

REF268

39.20-1 Vapor collection system

REF269

"Gas free" means that the space is free from dangerous concentrations of flammable or toxic gases. A "Gas-free" Certificate is issued as "Safe for Men, Safe for Hot Work" only when: 1. Residues in the space are not capable of producing toxic gases; 2. Combustible gas concentrations are less than 10% of the Lower Explosive Limit (LEL). 3. Toxic gases are within permissible limits and; 4. Oxygen content is at least 19.5%

REF270

46 CFR 35.30-30 Portable electric equipment—TB/ALL. Portable electric equipment must not be used in a hazardous location described in subpart 111.105 of this chapter except: (a) Self-contained, battery-fed, explosion-proof lamps approved by Underwriters Laboratories Inc., Factory Mutual Research Corporation, or other independent laboratory recognized by the Commandant, for use in a Class I, Division 1 location for the electrical group classification of the cargo; (b) Intrinsically safe equipment approved by Underwriters Laboratories Inc., Factory Mutual Research Corporation, or other independent laboratory recognized by the Commandant, for use in a Class I, Division 1 location for the electrical group classification of the cargo; and (c) Any electrical equipment, if: (1) The hazardous location is: (i) Enclosed; and (ii) Gas free; (2) The adjacent compartments are: (i) Gas free; (ii) Inerted; (iii) Filled with water; (iv) Filled with Grade E liquid; or (v) Spaces where flammable gases are not expected to accumulate; and: (3) Each compartment where flammable gas is expected to accumulate is: (i) Closed; and (ii) Secured. [CGD 74-125A, 47 FR 15230, Apr. 8, 1982]

REF283

An EPIRB is an emergency locating radio beacon that transmits a radio signal. You must stow an EPIRB so that it will float free if the vessel sinks. Keep it easily accessible for testing and use.

REF306

46 cfr 92.20–35 Hospital space. (a) Each vessel which in the ordinary course of its trade makes voyages of more than 3 days duration between ports and which carries a crew of 12 or more, must be provided with a hospital space. This space must be situated with due regard to the comfort of the sick so that they may receive proper attention in all weathers. (b) The hospital must be suitably separated from other spaces and must be used for the care of the sick and for no other purpose. (c) The hospital must be fitted with berths in the ratio of 1 berth to every 12 members of the crew or portion thereof who are not berthed in single occupancy rooms, but the number of berths need not exceed 6. (d) The hospital must have a toilet, washbasin, and bathtub or shower conveniently situated. Other necessary suitable equipment such as a clothes locker, a table, and a seat shall be provided. (e) On vessels in which the crew is berthed in single occupancy rooms, a hospital space will not be required, provided that one room is designated and fitted for use as a treatment or isolation room. This room must meet the following standards: (1) The room must be available for immediate medical use; and (2) A washbasin with hot and cold running water must be installed either in or immediately adjacent to the space and other required sanitary facilities must be conveniently located.

REF307

46 CFR TABLE 95.50-10 (a)

REF308

One shore connection must be available to each side of the vessel, not one connection on each side. On an international voyage there must be one international shore connection provided that can be available for use on either side of the vessel: 46 CFR 95.10-10(c): "On vessels of 500 gross tons and over there must be at least one shore connection to the fire main available to each side of the vessel in an accessible location. Suitable cut-out valves and check valves must be provided. Suitable adapters also must be provided for furnishing the vessel's shore connections with couplings mating those on the shore fire lines. Vessels of 500 gross tons and over on an international voyage must be provided with at least one international shore connection complying with ASTM F 1121 (incorporated by reference, see §95.01–2). Facilities must be available enabling an international connection to be used on either side of the vessel.

REF311

131.855 Lifeboats and rescue boats Each lifeboat must have its number plainly marked or painted on each side of the bow in figures not less than 3 inches high. The lifeboats on each side of the vessel must be numbered from forward aft, with the odd numbers on the starboard side.

REF312

46 cfr 169.717

REF313

46 CFR § 97.15-3 - Steering gear, whistle, and means of communication.

REF314

Subpart 97.34—Work Vests § 97.34–1 Application. (a) Provisions of this subpart shall apply to all vessels inspected and certificated in accordance with this subchapter. § 97.34–5 Approved types of work vests. (a) Each buoyant work vest carried under the permissive authority of this section must be approved under— (1) Subpart 160.053 of this chapter; or (2) Subpart 160.077 of this chapter as a commercial hybrid PFD. [CGD 78–174A, 51 FR 4350, Feb. 4, 1986] § 97.34–10 Use. (a) Approved buoyant work vests are considered to be items of safety apparel and may be carried aboard vessels to be worn by crew members when working near or over the water under favorable working conditions. They shall be used under the supervision and control of designated ship's officers. When carried, such vests shall not be accepted in lieu of any portion of the required number of approved life preservers and shall not be substituted for the approved life preservers required to be worn during drills and emergencies. § 97.34–15 Shipboard stowage. (a) The approved buoyant work vests shall be stowed separately from the regular stowage of approved life preservers. (b) The locations for the stowage of work vests shall be such as not to be easily confused with that for approved life preservers. § 97.34–20 Shipboard inspections. (a) Each work vest shall be subject to examination by a marine inspector to determine its serviceability. If found to be satisfactory, it may be continued in service, but shall not be stamped by a marine inspector with a Coast Guard stamp. If a work vest is found not to be in a serviceable condition, then such work vest shall be removed from the vessel. If a work vest is beyond repair, it shall be destroyed or mutilated in the presence of a marine inspector so as to prevent its continued use as a work vest.

REF505

A simple gooseneck vent may be used to vent the tank only when the least dangerous combustible types of cargo, such as Grades D and E, are carried. When gooseneck vents are installed, they are subject to regulations that specify the minimum height above the deck, the means for closing them to prevent water from entering during heavy weather, and the types of approved flame screens they must be fitted with. A flame screen is a fine mesh screen that permits the passage of air and vapors but prevents a flame from being drawn into the tank - but only if the screen is properly maintained in good condition and free of holes.

REF506

TABLE 30.25-1

REF507

46 CFR 32.55-25

REF508

TABLE 34.50

REF509

46 CFR 108.417(b)

REF510

46 CFR 35.30-1(a)

REF511

46 cfr 35.35-42 Restrictions on vessels alongside a tank vessel loading or unloading cargo of Grade A, B, or C—TB/ALL. (a) No vessel may come alongside or remain alongside a tank vessel in way of its cargo tanks while it is loading or unloading cargo of Grade A, B, or C without permission of the person in charge of the transfer on the tank vessel. (b) No vessel may come alongside or remain alongside a tank vessel in way of its cargo tanks while it is loading or unloading cargo of Grade A, B, or C unless the conditions then prevailing are acceptable to the persons in charge of cargo-handling on both vessels.

REF512

46 CFR § 32.60-20 - Pumphooms on tank vessels carrying Grade A, B, C, D and/or E liquid cargo

REF513

46 CFR 32.60-20

REF514

32.60-20 Pumphooms on tank vessels carrying Grade A, B, C, D and/or E liquid cargo.