



Safety And Environmental Protection

This Study Guide Generated For

Preview Only. Download the

complete studyguide Here.

<https://cgexams.seasources.net>

DO NOT DISTRIBUTE

Which shape shown would be displayed by a mobile offshore drilling unit that is being towed more than 200 meters astern of a towing vessel? Illustration D016RR

B

Illustrations: D016RR_WM_052416

What is the purpose of a chain stopper?

Secures the chain after it has been stopped

Illustrations: NAVYCHAINSTOPPER

If help has not arrived in 10-12 hours after you abandon a MODU in a survival craft, you should _____.
shut down the engine(s) and set the sea anchor

Illustrations: SEAANCHOR

See REF784

If help has not arrived in 10-12 hours after having abandoned a MODU in a survival craft, you should _____.
shutdown the engines and set the sea anchor

Illustrations: SEAANCHOR

See REF784

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

Illustrations: SEAANCHOR

See REF784

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

Illustrations: SEAANCHOR

See REF784

In illustration D041DG, the symbol for the vertical plane midway between the fore and aft perpendiculars is _____.

3

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM

See REF025

In the illustration, symbol 2 represents _____. Illustration D041DG
baseline

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM

See REF025

As shown, the symbol 3 represents _____. Illustration D041DG
amidships

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM

See REF025

The symbol 5 as shown represents _____. Illustration D041DG
centerline

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

As shown, the symbol for the reference from which transverse measurements are made is _____. Illustration
D041DG
5

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

In illustration D041DG symbol 1 refers to _____.
displacement

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

In illustration D041DG, the symbol for amidships is _____.
3

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

In illustration D041DG, the symbol for displacement is _____.
1

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

In illustration D041DG, the symbol for the reference from which the height of the center of gravity is measured is
_____.
2

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

In the illustration, symbol 2 represents _____. Illustration D041DG
baseline

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

As shown, the symbol 3 represents _____. Illustration D041DG
amidships

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

The symbol 5 as shown represents _____. Illustration D041DG
centerline

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

As shown, the symbol for the reference from which transverse measurements are made is _____. Illustration D041DG

5

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

In illustration D041DG symbol 1 refers to _____.

displacement

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

In illustration D041DG, the symbol for amidships is _____.

3

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

In illustration D041DG, the symbol for displacement is _____.

1

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

In illustration D041DG, the symbol for the reference from which the height of the center of gravity is measured is _____.

2

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

In illustration D041DG, the symbol for the vertical plane midway between the fore and aft perpendiculars is _____.

3

Illustrations: D041DG_WM_071918, STRUCTURALMEMBER_WM
See REF025

In towing it is desirable for the tug and the MODU to ride wave crests simultaneously because _____.

shock loading on the tow line is reduced

Illustrations: TOW IN STEP

See REF292

The condition where a MODU on the end of a tow line is riding a wave crest at the same time as its tug rides a wave crest is known as riding in _____.

step

Illustrations: TOW IN STEP

See REF292

Yawing can be described as _____.

veering from side to side on the end of the tow line

Illustrations: PITCH_ROLL_YAW

See REF291

If you see someone fall overboard from a MODU, you should _____.
call for help and keep the individual in sight

Illustrations: WILLIAMSON_TURN, ANDERSON_TURN, SCHARNOW_TURN
See REF180

If you see someone fall overboard from a MODU, you should _____.
call for help and keep the individual in sight

Illustrations: WILLIAMSON_TURN, ANDERSON_TURN, SCHARNOW_TURN
See REF180

If you see someone fall overboard from a MODU, you should _____.
call for help and keep the individual in sight

Illustrations: WILLIAMSON_TURN, ANDERSON_TURN, SCHARNOW_TURN
See REF180

A tank with a volume of 2,000 cubic feet is pressed with fresh water weighing 62.4 pounds per cubic foot. What is the weight, in kips, of the liquid?
124.8 kips

Illustrations: STABILITYFORMULAS

Under ideal conditions, the DEEP DRILLER can pick up and place pipe in the rack at a rate of about _____.
1,000 feet per hour

While loaded as shown in Sample Load Form #5 (Survival), an estimated 250 long tons of snow and ice accumulates on the DEEP DRILLER at an estimated height of 127 feet. Assuming no corrective ballasting, what is the rise in the height of the center of gravity corrected for longitudinal free surface effects?
1.03 feet

What is the VCG of the additional load if P-tank #4 in the DEEP DRILLER Sample Load Form #1 (Transit) is completely filled?
123.06 feet

While loaded as shown in the DEEP DRILLER Sample Load Form #4 (Drilling), all of the liquid mud is dumped. What is the new height of the longitudinal metacenter?
61.20 feet

The DEEP DRILLER, loaded as shown in the Sample Load Form #4 (Drilling), discharges a non-liquid load of 275.8 long tons from a position 130 feet above the keel, 40 feet forward of amidships, and 30 feet to port of the centerline. What is the new KGL?
54.32 feet

The DEEP DRILLER is loaded as shown in the Sample Load Form #1 (Transit). What is the new metacentric height corrected for longitudinal free surface effects if the entire contents of salt water ballast tanks 1P and 1S are discharged? (Use KML = 348.58)
279.37 feet

The DEEP DRILLER is loaded as shown in the Sample Load Form #3 (Preparing to Drill). According to the deck load graph, how much additional deck load could be added to the unit?
526.87 long tons

What is the shift in KG if all the liquid mud is dumped when the DEEP DRILLER is loaded as shown in the Sample Load #3 (Preparing to Drill)?

1.51 feet downward

In case of minor damage to lower-hull tank 1P while the DEEP DRILLER is in transit, you should pump from tank 1P using _____.

both port-side ballast pumps

The DEEP DRILLER, while loaded as shown in the Sample Load Form #5, loads 275.8 long tons. The resulting trim by the stern is 3 feet and list to port is 2 feet. What is the draft at the starboard aft draft mark?

47 feet 6 inches

The DEEP DRILLER is loaded as shown in the Sample Load Form #4 (Drilling). What would be the weight of the mud in pit #4 if the mud weight was changed from 16 to 14 pounds per gallon?

93.34 long tons

The DEEP DRILLER is loaded as shown in the Sample Load Form #1 (Transit). What is the new transverse free surface correction (FSCT) if the entire contents of Salt Water Ballast Tanks 1P and 1S are discharged?

0.46 foot

On the DEEP DRILLER, among the valves to open when transferring ballast from Tank 1S to Tank 10P using the #1 ballast pump is valve _____.

33 Port

The DEEP DRILLER, at a draft of 60 feet, has 3,765 ft-tons of transverse moments. How much ballast should be transferred between tanks 1P and 1S to level the unit in list?

25.1 long tons

A record of the types and strengths of steels used on a MODU must be included in the _____.

construction portfolio

See REF1871

Between the side frames on a MODU, support for the deck beams is provided by _____.

stanchions

Where is thicker plating usually found in the construction of integral tanks on a MODU?

At the bottom of the tank

The natural rolling period of a drilling barge increases when _____.

ice accumulates above deck

For a MODU with trim, a decrease in GMT will cause the angle of inclination to _____.

increase

The free surface corrections depend upon the dimensions of the surface of the free liquids and the _____.

displacement of the MODU

The righting moment created by a MODU that displaces 15,000 tons with a righting arm (GZ) of 0.02 foot is _____.

300 foot-tons

The DEEP DRILLER, at a draft of 60 feet, has a KGL of 55.4 feet and an LCG of 2.37 feet. What is the trim in feet?

4.0 feet by the head

The DEEP DRILLER departs a fresh water port at a draft of 20.5 feet. What will be the draft in sea water?

19.7 feet

A jack-up has 8 inches of trim by the stern. Calculations show that the moment required to change trim one inch (MCT1") is 500 foot-kips. To level the unit, how far must a weight of 50 kips be transferred toward the bow?

80.0 feet

A jack-up with displacement of 10,000 kips has its LCG 100 feet aft of frame zero (AFO). If 200 kips are loaded at 60 feet AFO and 100 kips are discharged from 20 feet AFO, what is the new LCG?

100.0 feet

What is the purpose of a vent header?

Combines individual vent lines into a main

A semisubmersible, 200 feet in length between draft marks with the LCF 10 feet aft of amidships, records the following drafts: Port Forward 64'-09"; Port Aft 68'-09"; Starboard Forward 59'-09"; and Starboard Aft 63'-09". What is the trim?

4 feet by the stern

For the purposes of the International Rules of the Road, a non-self-propelled mobile offshore drilling unit under tow is considered to be a _____.

vessel

An obstruction light on a mobile offshore drilling unit on the waters of the U.S. Outer Continental Shelf, shall have a lens that is visible over an arc of _____.

360°

You cannot operate a VHF or SSB radiotelephone aboard a rig unless that station is licensed by the _____.

Federal Communications Commission

The pneumatic containers which store bulk dry mud additives and cement on a MODU are called _____.

P-tanks

When drilling from a MODU the weight in air of tubular goods on the racks is reduced when run into the drilled hole because of the effect of _____.

buoyancy of the mud

Oil well casing will fail when the external pressure exceeds the internal pressure by a differential equal to the casing's rated _____.

collapse pressure

The shear rams of a MODU blowout preventer stack are used in emergency well control to _____.

cut off pipe inside the preventer stack

All MODU personnel should be familiar with the survival craft _____.

boarding and operating procedures

See REF1884

For a MODU not on an international voyage, an approved substitute for an impulse projected rocket-type line throwing appliance is a _____.

shoulder type throwing gun

See REF1859

If there are a number of survivors in the water after abandoning a MODU, they should _____.

group to form a small circle of survivors to create a warmer pocket of water in the center of the circle

While drilling ahead with 60 foot draft, the DEEP DRILLER encounters lost circulation and loses 900 bbls. of 16 pounds per gallon mud to the hole. How much ballast must be taken on to maintain 60 foot draft?

270 long tons

Starboard ballast pump #1 on the DEEP DRILLER has failed. To deballast from tank C2SA using starboard ballast pump #2, it is necessary to open the manual valve and which motor driven valves?

15, 34, 35, 36, 46, 48

The maximum concentration of H2S to which workers may be regularly exposed without adverse effects is _____.

20 ppm

See REF1807

If H2S exposure is anticipated, fixed monitoring devices aboard a MODU should have a low level concentration alarm to alert personnel when H2S concentrations first reach a maximum of _____.

10 PPM

See REF1810

Using high working tensions in the mooring system reduces the _____.

margin between working tension and breaking strength

The object of plugging holes below the waterline on a MODU should be to _____.

reduce the entry of water as much as possible

On a MODU, hand portable extinguishers are size(s) _____.

I and II

See REF1865

According to U.S. Coast Guard Regulations (46 CFR), portable Halon fire extinguishers used on a MODU may be charged with _____.

HALON 1211 only

See REF1869

How many fireman's outfits are required on a MODU?

2

See REF1816

Who shall insure that all records required by regulations are retained onboard a mobile offshore drilling unit involved in a casualty?

Owner

See REF1842

A fire can be extinguished by removing _____.

the heat

the fuel

the oxygen

Any of the above.

See REF1907

Fire dampers prevent the fire spreading through the process of _____.

convection

See REF196

Prior to entering a shipboard compartment containing spilled sewage, you should test the atmosphere in the compartment for _____.

Hydrogen sulfide

Methane Gas

Oxygen

All of the above.

See REF1807

On a tanker, the most likely location for a liquid cargo fire to occur would be _____.

in the pumproom

See REF177

You notice a large amount of smoke coming from an open laundry room doorway, accompanied by the odor of burning cotton fabric. After activating the fire alarm, your next course of action should be to _____.

close the door to the room

Smoking in bed on a MODU is prohibited _____.

at all times

When fire pumps are used for other than firefighting service, each pipe connecting the other service (except for branch lines used for deck washing) must have a _____.

shut off valve at a manifold near the pump

On a MODU, size I and II extinguishers are considered _____.

hand portable

See REF1867

If a mobile offshore drilling rig has four hand portable fire extinguishers that can be recharged by personnel on the unit, how many spare charges must be carried?

2

Overspeed of the diesel engine driving an electric generator could cause _____.

damage to windings

The International Oil Pollution Prevention (IOPP) Certificate required by MARPOL is issued to U.S. flag MODUs by the _____.

U.S. Coast Guard

See REF1828

An "on-load" release system on a survival craft means the cable can be released _____.

at any time

The "off-load" release system on a survival craft is designed to be activated _____.

when there is no load on the cable

To inflate a davit launched liferaft you _____.

pull the inflation lanyard

With the sprinkler system and air system on and all hatches shut, the survival craft will provide protection from a _____.

fire and toxic environment

An effective braking system for windlasses on rigs in deep water is a(n) _____.

electrical regenerative braking system

The fluke angle of an anchor system is the angle between the _____.
flukes and the shank

What is an advantage of the 6x19 class of wire rope over the 6x37 class of wire rope of the same diameter?
Resistance to corrosion

Which problem is virtually impossible to detect during an in-service inspection of used mooring chain?
Fatigue

The maximum variable load for the COASTAL DRILLER while elevated in a severe storm is _____.
2,381 kips

On a semisubmersible drilling unit, decreasing riser tension increases _____.
GM

In storm conditions, with the wind and waves from the port bow of the DEEP DRILLER in 400 feet water depth, the tensions in mooring lines 1 and 2 are 400 kips. Completely slacking the mooring lines 5 and 6 reduces the tension in mooring lines 1 and 2 to about _____.
330 kips

A shepherd's crook is used to _____.
find an anchor after the buoy has been lost

The tension on an anchor cable increases so that the angle of the catenary to the seabed at the anchor reaches 10 degrees. How will this affect the anchor in sandy soil?
It will reduce the holding power.

The edge of a hurricane has overtaken your MODU in the Gulf of Mexico and the northwest wind of a few hours ago has shifted to the west. This is an indication that you are located in the _____.
navigable semicircle

Each emergency generator on a mobile offshore drilling unit, when tested, must be run under a full load for at least _____.
two hours
See REF1832

What is the minimum number of hand held, rocket propelled, parachute, red flare, distress signals required on board offshore drilling units?
12

Each hand portable, semi-portable, and fixed fire extinguishing unit on a MODU must be tested and inspected at least once every _____.
twelve months
See REF1835

Each ventilation system for an enclosed classified location on a MODU must provide a complete change of air every _____.
5 minutes
See REF1916

On offshore drilling units each fire station is identified by letters and numbers at least _____.
2 inches high

A construction portfolio prepared for each new offshore drilling unit must be approved by the _____.
U.S. Coast Guard

To determine the number of certificated Lifeboatmen required on a mobile offshore drilling unit, you should check the _____.

Certificate of Inspection

On offshore drilling units, notification shall be given to the Coast Guard of a casualty if a person is injured and unable to perform routine duties for _____.

any amount of time

How long must the records of tests and inspections of fire fighting equipment on board a MODU be retained on board?

Until the next inspection for certification

See REF1595

Prior to getting underway, the Master or person in charge of a MODU must _____.

log the fore and aft draft marks

The International Oil Pollution Certificate required by MARPOL is issued to U.S. flag MODUs by the _____.

U.S. Coast Guard

See REF1828

To which of the listed authorities must a MODU report a collision with an aid to navigation?

Appropriate Officer-in-Charge, Marine Inspection.

See REF1917

On the cargo manifest, the total weight of a box containing cargo is the _____.

gross weight

See REF482

If, during helicopter refueling operations, fuel is spilled on clothing, the person should first _____.

remove the clothing and wash

Consideration should be given in planning for the mooring orientation in a new location so that in adverse weather a crane is available to off-load the supply vessel on what side of the unit?

Leeward side

Compliance with the terms of the load line certificate on a MODU is the responsibility of the _____.

Master or Offshore Installation Manager

See REF487

A floating MODU with an initial negative metacentric height _____.

may lie at an angle of loll

See REF776

The angle to which a floating MODU, with a negative initial metacentric height, lies while at rest in still water is the angle of _____.

loll

See REF764

A floating jack-up with displacement of 16,200 kips has its LCG 110.37 feet aft of frame zero (AF0). If 200 short tons are discharged from 120 feet AF0 and 400 short tons are discharged from 150 feet AF0, what is the new LCG?

108.0 feet

The DEEP DRILLER, while loaded as shown in the Sample Load Form #4 (Drilling), suffers severe damage to the starboard aft column below the waterline. You should pump from tank _____.

9S

Progressive flooding on a MODU is controlled by securing watertight boundaries and _____.
pumping out flooded compartments

A MODU lists and trims about the _____.
center of flotation

If the maximum leg penetration of the COASTAL DRILLER is 75 feet, the water depth value in the Allowable Wind and Wave Charts must be increased by _____.
50 feet

What is the VCG of the drill water in the COASTAL DRILLER's #1 Drill Water Tank, if the weight in the tank is 388.32 kips?
7.75 feet

While in 150 feet water depth when the single amplitude roll angle of the COASTAL DRILLER is 1 degree, the safe platform roll period for going on location should be longer than _____.
7.0 seconds

The rotary of the COASTAL DRILLER is located 34 feet aft of the transom and 2 feet to port of the centerline. With the changes to lightweight shown in the Operating Manual, the maximum allowable hook load is _____.
854 kips

To what distance below the hull must the legs of the COASTAL DRILLER be lowered in order to meet the stability and leg strength requirements during the wind speeds greater than 70 knots?
60.5 feet

On the COASTAL DRILLER, what is NOT considered a drilling load?
Cantilever pipe rack

While the COASTAL DRILLER is elevated, the out-of-level alarm indicates that hull inclination exceeds 0.3°. What should you do?
Confirm operation of out-of-level alarm.

While in transit at a draft of 10.5 feet, the COASTAL DRILLER has a KGT of 60.0 feet. What is the GMT?
78.89 feet

The COASTAL DRILLER, while elevated in 200 feet of water, has 2 knots of current, 50 knots of wind, and 30 foot seas. What is the maximum leg reaction for drilling?
6,090 kips

The COASTAL DRILLER is loaded as shown in the Sample Load Form #1 (Rig Move). If the drill water in drill water tanks #6 and #25 are discharged, what is the new draft?
10.66 feet

While loaded as shown in the COASTAL DRILLER sample load form #3 (drilling), 50 kips of tubulars are discharged from the cantilever starboard pipe racks. What is the change in the vessel's LCG?
0.23 foot forward

Because there is a possibility of fuel oil being discharged overboard from a full fuel oil tank, it is decided to transfer 25 kips from tank #14 to tank #13. See COASTAL DRILLER Sample Load Form #1 (Rig Move). What would be the change in transverse moments with this transfer?
2010 ft-kips

The COASTAL DRILLER is loaded as shown in the Sample Load Form #1 (Rig Move). What is the new TCG if the entire contents of drill water tanks 6 and 7 are discharged?

-0.23 foot

While the COASTAL DRILLER is in transit at a draft of 10 feet 6 inches, a severe storm is predicted within 12 hours. VM are 546,462 ft-kips, FSML are 18,000 ft-kips, and FSMT are 32,000 ft-kips. How much should the KG corrected for free surface effects be lowered to satisfy the maximum allowable KG criteria?

2.34 feet

The COASTAL DRILLER, loaded as shown in the Sample Load Form #3 (Drilling), dumps all the mud in pits 1, 2, 3, and 4. What is the new LCG?

125.63 feet AFO

When the COASTAL DRILLER is elevated, the water for the saltwater eductor system is provided by _____.

raw water tower pumps

On the COASTAL DRILLER, placing the rotary 34 feet aft of the transom and two feet to starboard of the centerline, limits the maximum hook load to _____.

875 kips

After jacking down your liftboat you have an unexpected list. You find that the only cause of this list must be a flooded leg. To keep adequate stability you should _____.

jack back up and ballast the vessel's high side as necessary

A semisubmersible with displacement of 19,700 long tons and KG of 50.96 feet loads 300 long tons of barite into P-tanks located 120 feet above the keel. What is the change in KG?

1.04 feet upward

During the passage of a severe storm the maximum vertical moments, including free surface moments, permitted on the DEEP Driller at survival draft is _____.

996,522 ft-tons

The principal action in changing from transit to survival draft in the event heavy weather threatens is _____.

ballasting

The DEEP DRILLER as currently configured is limited to a maximum drilling depth of _____.

25,000 feet

The DEEP DRILLER is level at a draft of 58 feet when there are no environmental forces. What is the value of TCG?

0.00 on the centerline

Before deballasting to survival draft in the event of predicted heavy weather, the DEEP DRILLER Operations Manual recommends that the mooring lines be slacked _____.

20 feet

While loaded as shown in Sample Load Form #5 (Survival), an estimated 250 long tons of snow and ice accumulates on the DEEP DRILLER at an estimated height of 127 feet. Assuming no corrective ballasting, what is the new height of the center of gravity corrected for longitudinal free surface effects?

60.68 feet

What are the longitudinal moments for the contents of P-tank #1 of the DEEP DRILLER if the ullage is 2.3 feet?

-3,096 ft-tons

While loaded as shown in the DEEP DRILLER Sample Load Form #4 (Drilling), all of the liquid mud is dumped. What is the new location of the longitudinal center of gravity?

1.71 feet

The DEEP DRILLER, loaded as shown in the Sample Load Form #4 (Drilling), discharges a non-liquid load of 275.8 long tons from a position 130 feet above the keel, 40 feet forward of amidships, and 30 feet to port of the centerline. What is the new KGT?

53.65 feet

When the ullage is 5.7 feet in P-Tank #6 for the Deep Driller, the transverse moment for P-Tank #6 is _____.

1,887 foot-tons

The DEEP DRILLER is loaded as shown in the Sample Load Form #4 (Drilling). According to the deck load graph, how much additional deck load could be added on the unit?

461.87 long tons

The DEEP DRILLER is drilling at 60 feet draft at a corrected KG of 54.0 feet. Ballast added or discharged to remain at a constant draft is at a VCG of 10 feet. How much non-liquid load would have to be removed from an average height of 130 feet above the keel to meet the maximum allowable KG at a draft of 60 feet for winds greater than 70 knots?

302 long tons

The DEEP DRILLER suffers minor flooding of the port pump room while in transit. If both port bilge pumps fail to dewater the pump room, you may _____.

use port drill water pump

With no environmental forces on the DEEP DRILLER, the average of the forward drafts is 61.0 feet, and the average of the aft drafts is 59.0 feet. KGL is 51.13 feet. What is the value of LCG?

2.35 feet

While underway in a field move with the lower hulls awash, a semisubmersible has an allowable KG of 63.69 feet; KMT is 65.12 and KML is 64.92. The KGT is 56.13 and KGL is 55.89. What is the GML?

9.03 feet

The DEEP DRILLER is loaded as shown in the Sample Load Form #2 (Ballasting to Survival). What is the new draft if all the bulk materials are discharged?

44.27 feet

On the DEEP DRILLER, among the valves to open when transferring ballast from Tank 10S to Tank 1P using the #2 ballast pump is valve _____.

34 Port

The DEEP DRILLER, at a draft of 60 feet, has -3,600 ft-tons of transverse moments. How much ballast should be transferred between tanks 10P and 10S to level the unit in list?

25.1 long tons

The construction portfolio may be included as part of the MODU _____.

operating manual

See REF1871

In MODU construction, beam brackets are triangular plates that join the deck beam to a _____.

frame

In a semisubmersible MODU, the columns contain void spaces above the waterline that are used principally for _____.

reserve buoyancy

For a floating MODU, true mean draft is always the _____.
draft at the center of flotation

Semisubmersibles A and B are identical. However, "A" is more tender than "B". This means that "A" relative to "B" has a _____.
smaller GM

When the wave period and the apparent rolling period of the MODU are the same _____.
synchronous rolling occurs
See REF559

The DEEP DRILLER is level at a draft of 60 feet in calm water. What is the value of the righting moment?
0 foot-tons

A jack-up 180 feet in length with the LCF at 120 feet AFO has a draft of 8 feet at the bow and 11 feet at the stern. What is the trim by the stern?
3.0 feet

What is the displacement of the DEEP DRILLER with a draft of 19.5 feet in fresh water?
11,932.8 long tons

A jack-up is trimmed six inches by the bow. The moment required to change trim one inch (MCT1") is 1200 foot-kips. Transferring 200 kips of drill water from a tank with an LCG of 20 feet to a tank with an LCG of 140 feet results in a final trim of _____.
1 foot 2 inches by the stern

What is the longitudinal shift in the center of gravity if 200 short tons is moved ten feet to port and 30 feet forward on a MODU with a displacement of 8,960 long tons?
0.67 foot

In the piping systems of a MODU, what type of valve gives the least resistance to fluid flow when fully open?
Gate valve

A semisubmersible, 200 feet in length between draft marks with the LCF 10 feet aft of amidships, records the following drafts: Port Forward 74'-09"; Port Aft 78'-09"; Starboard Forward 69'-09"; and Starboard Aft 73'-09". What is the trim?
-4.0 feet

The prohibition against displaying lights which may be confused with required navigation lights applies _____.
from sunset to sunrise and during restricted visibility

What lighting characteristic is required of an obstruction light on a mobile offshore drilling unit on the waters of the U.S. Outer Continental Shelf?
Quick-flashing

The master or person-in-charge of a MODU is required to submit a casualty report of an intentional grounding when _____.
it creates a hazard to the vessel
See REF1880

In MODU operations, hoisting and lowering pipe in and out of the drilled hole is the main function of the _____.
drawworks

At the instant when a string of casing being run from a MODU is landed in the well head, _____.
the hook load (weight of the casing string) is removed from the MODU

The connected joints of pipe, usually made of three joints of pipe approximately 90 feet long, racked in the derrick when making a trip are called a _____.

stand

During an evacuation from a MODU, an individual without the option of a survival craft or life raft should enter the water on the leeward side, except when _____.

there is burning oil on the water

All MODU personnel should be familiar with the survival craft's _____.

boarding and operating procedures

See REF1884

How often is the line throwing appliance required to be tested on a mobile offshore drilling unit?

Once every four months

See REF1595

The order to abandon a MODU should only be given by the _____.

Offshore Installation Manager

While drilling ahead with 60 foot draft, the DEEP DRILLER encounters lost circulation and loses 460 barrels of 16 pounds per gallon mud to the hole. What is the resulting draft if no additional ballast is taken on?

59 feet

The DEEP DRILLER is loaded as shown in Sample Load Form #4 (Drilling). While the unit is deballasting, starboard valve 17 fails in the closed position. You may deballast from tank 8S by pumping from tank 9S and opening valves 18 and _____.

20

The probability of sulfide stress cracking in the presence of hydrogen sulfide is greatest for _____.

high strength steel

See REF1807

During severe storms when survival becomes a major concern, it may become necessary to relieve high anchor tensions on the windward side of the unit by _____.

paying out cable on the leeward side

When dragging of an anchor occurs, you must back it up with a piggyback (backing) anchor or _____.

reposition it at a greater range

A fire in an oil rig ballast pump room can be brought under control with minimal impact on stability by _____.

shutting all sources of air into the compartment

See REF189

Cartridge-operated dry chemical fire extinguishers used on MODUs, should have the propellant cartridge weighed every _____.

12 months

See REF1835

Due to the hazards involved with Halon type fire extinguishers on a MODU, the size II extinguisher may only be used _____.

outside of an occupied space

See REF1869

What is the minimum required number of fire axes that must be carried on a mobile offshore drilling unit?

2

See REF1855

The master or person in charge of a MODU must record the date of each test of emergency lighting systems, power systems, the condition of each and the performance of the equipment _____.

in the official log

See REF1903

A fire may be spread by which of the following means?

Conduction of heat to adjacent surfaces

Direct radiation

Convection

All of the above.

See REF196

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 REF196

When pumping sour crude, which gas should be tested for prior to entering the cargo pumproom to repair a leaking pump?

Hydrogen sulfide

See REF1807

Except in rare cases, it is impossible to extinguish a shipboard fire by _____.

removing the fuel

See REF181

The spread of fire can be prevented by _____.

cooling surfaces adjacent to the fire

removing combustibles from the endangered area

reducing or limiting the oxygen supply

All of the above.

It is the responsibility of the Master or person in charge of a MODU to ensure that _____.

temporary personnel and visitors are advised of emergency stations

Multiple fire pumps may be used for other purposes provided that one pump is _____.

kept available for use on the fire main at all times

Semi-portable extinguishers used on MODU's are sizes _____.

III, IV, and V

See REF1868

On offshore drilling units, the minimum required number of fireman's outfits which must be carried is _____.

2

What is the function of wearing rings found on some centrifugal pumps?

Isolate the outlet side from the inlet side

The International Oil Pollution Prevention Certificate on a MODU is valid for a period of _____.

four years from the date of issue

See REF1828

At a speed of 6 knots the fuel aboard a survival craft should last _____.

24 hours

The air cylinder bottles in the survival craft should be refilled with _____.

compressed air

What is the primary advantage of a davit-launched liferaft in comparison to an inflatable liferaft?

The davit-launched liferaft enables personnel to enter the raft without having to enter the water.

You are in a survival craft broadcasting a distress message. What information would be essential to your rescuers?

Your position by latitude and longitude

See REF787

Anchor shackles should have a breaking strength that is _____.

equal to the chains they are connecting

The holding power of an anchor is the _____.

maximum sustained horizontal load an anchor will resist before dragging

What is an advantage of the 6x37 class of wire rope over the 6x19 class of wire rope of the same diameter?

Flexibility

Which two components pass through the shank of an LWT anchor?

Anchor shackle and stock

The motion that can significantly increase mooring line tension is _____.

sway

When clear ice is present while drilling, the vertical transverse moments of the DEEP DRILLER are increased by _____.

42,255 ft-long tons

In storm conditions, with the wind and waves from the starboard bow of the DEEP DRILLER in 400 feet water depth, the offset is 7%. Completely slacking mooring lines 7 and 8 reduces the offset to _____.

4.0 (%)

After deploying the anchor, a permanent chain chaser is _____.

stripped back to the rig and secured

The two main types of load cells used in mooring tension gauges are _____.

distortion and compression

In observing rig motion while under tow, the period of roll is the time difference between _____.

full inclination on one side to the next full inclination on the same side

A hurricane has recurved to the northeast and its forward speed is 20 knots. Your MODU is located 600 miles northeast of the hurricane's center. How long will it take for the hurricane center to reach your position if it holds its present course and speed?

30 hours

Each person on a MODU carrying immersion suits must wear the immersion suit in a boat drill, or participate in a drill which includes donning the suit and being instructed in its use at least once every _____.

month

See REF269

An offshore drilling unit must be equipped with a first aid kit approved by the _____.

Mine Safety and Health Administration

The person responsible for maintaining clean and sanitary conditions in the accommodation spaces of a MODU is the _____.

Master or person in charge

On offshore drilling units when two means of escape are provided from a space above the main deck, one means of escape must be required for rapid escape to _____.

a weather deck

On a self-elevating drilling unit, draft marks must be located _____.

near each corner of the hull

If a fixed foam firefighting system on a MODU is not of the premix type, a sample of the foam liquid must be tested by _____.

the manufacturer or his authorized representative

A MODU must have on board a first-aid kit that is approved by the _____.

Mine Safety and Health Administration

According to regulations, a Master or person in charge of a MODU is required to submit a report of a loss of life _____.

to the nearest OCM

How long shall the Master or person in charge of a MODU maintaining an unofficial logbook retain this logbook on board?

Until the next inspection for certification

See REF1595

Prior to getting underway in fresh or brackish water, the Master or person in charge of a MODU must _____.

log the density of the water

A MODU is required to carry an Oil Record Book to log entries in the book regarding the _____.

discharge of ballast or cleaning water from fuel tanks

See REF530

During severe storms when survival becomes a major concern, it may become necessary to relieve high anchor tensions on the windward side of the MODU by _____.

paying out cable on the leeward side

On the cargo manifest, the total weight of an empty cargo box is the _____.

tare weight

See REF482

The only type of helicopter that may be refueled with the engine running and the blades turning is _____.

a turbine-equipped helicopter

Especially in adverse weather, risk of collision with an offshore supply vessel increases when the vessel is moored to what side of the unit?

Upwind

Air gap is the vertical distance between the bottom of the hull and the _____.

still water level

The free surface effects of a partially filled liquid tank decrease with increased _____.
displacement volume of the MODU

The existence of liquids in partially full tanks or compartments of a MODU causes a virtual rise in the height of the _____.
center of gravity

A semisubmersible in transit is at a draft of 19 feet. The depth of the lower hulls is 21 feet. How much bunker fuel at 54.0 lbs/cu ft could be taken on and still provide one foot of freeboard if the TPI is 52.3?
627.6 long tons

The DEEP DRILLER, while loaded as shown in the Sample Load Form #4 (Drilling), suffers severe damage to the port aft column below the waterline. You should pump from tank _____.
10P

The DEEP DRILLER, loaded as shown in Sample Load Form #2 (Ballast to Survival), suffers major damage which results in flooding in tank 1S. Your best countermeasure is to _____.
pump from 2S

A MODU with the TCG off the longitudinal centerline inclines to an angle of _____.
list

In comparison to electric power, hydraulic power for jacking systems has the advantage of _____.
better control capabilities

When elevated, placing the LCG and TCG at the leg centroid provides.
equal leg reactions

The COASTAL DRILLER, while in normal transit, experiences a single amplitude roll of 6 degrees. What is the minimum roll period which does not exceed design limits of the legs?
8.0 seconds

The rotary of the COASTAL DRILLER is located 38 feet aft of transom and 6 feet to starboard of the centerline. With the changes to lightweight shown in the Operating Manual, the maximum allowable hook load is _____.
424 kips

The COASTAL DRILLER, in transit with winds expected to exceed 70 knots, must lower the legs to 60.5 feet below the hull in order to meet the requirements for stability and _____.
leg strength

The elevating system of the COASTAL DRILLER is normally limited to _____.
14,400 kips

The COASTAL DRILLER, with a draft of 10 feet 3 inches in seawater, has a displacement of _____.
13,336 kips

The capacity of the COASTAL DRILLER preload tanks is _____.
8,708.0 kips

When the COASTAL DRILLER is properly preloaded, each of the leg reactions should be _____.
7,099 kips

The COASTAL DRILLER is loaded as shown in the Sample Load Form #1 (Rig Move). If the contents of the four bulk tanks are back-loaded to a supply boat, what would be the new draft?
10.57 feet

While loaded as shown in the COASTAL DRILLER sample load form #3 (drilling), 50 kips of tubulars are discharged from the cantilever starboard pipe racks. What is the change in the vessel's TCG?

0.048 foot port

Because there is a possibility of fuel oil being discharged overboard from a full fuel oil tank, it is decided to transfer 25 kips from tank #14 to tank #13. See COASTAL DRILLER Sample Load Form #1 (Rig Move). What would be the change in vertical moments with this transfer?

26 ft-kips decrease

The COASTAL DRILLER is loaded as shown in the Sample Load Form #1 (Rig Move). What is the new VCG if the entire contents of drill water tanks 6 and 7 are discharged?

49.16 feet

While the COASTAL DRILLER is in transit at a draft of 10 feet 6 inches, a severe storm is predicted within 12 hours. GMT is 98.89 feet. How much should the KG corrected for free surface effects be lowered to satisfy the maximum allowable KG criteria?

0.00 feet

The COASTAL DRILLER, loaded as shown in the Sample Load Form #4 (Storm), discharges all the bulk in the four bulk tanks. What is the new LCG?

119.18 feet AFO

The COASTAL DRILLER, while in transit, expects the winds to increase to 75 knots. In order to meet the stability and leg strength requirements, the tip-of-can (TOC) position should be at _____.

60.50 feet

While preloading, the COASTAL DRILLER has a total weight of 21,401 kips. The LM are 2,560,416 ft-kips, and the TM are 6,206 ft-kips. What is the bow leg reaction?

7,099 kips

After jacking down your liftboat you have an unexpected list. You find that the only cause of this list must be a flooded leg. Your next course of action should be to _____.

jack the vessel back up to a safe height

A semisubmersible displacing 17,600 long tons has an LCG 3.2 feet forward of amidships. Bulk, weighing 400 long tons, is loaded into P-tanks located 50.8 feet aft of amidships. What is the new LCG?

2.00 feet forward of amidships

Among the equipment included in the DEEP DRILLER lightweight are the derrick, traveling block in the lowest position, anchors, mooring chain, all machinery with liquids to normal operating level, and _____.

loading hoses

The ship's drawings for use when the DEEP DRILLER is damaged are available in the _____.

ballast control room

The DEEP DRILLER's lightweight is the condition prior to loading _____.

deck load, lower-hull liquids, external loads, and deploying anchors

The DEEP DRILLER has a KGT of 52.90 feet while at a draft of 58.0 feet. List is 2.0 feet to port. What is the value of TCG?

-0.16 foot

The time required to ballast the DEEP DRILLER to survival draft, when threatened with heavy weather, while under tow, is about _____.

2 hours

While loaded as shown in Sample Load Form #5 (Survival), an estimated 250 long tons of snow and ice accumulates on the DEEP DRILLER at an estimated height of 127 feet. Assuming no corrective ballasting, what is the margin on maximum allowable KG?

0.50 foot

What are the vertical moments for the cement contents of P-tank #1 of the DEEP DRILLER if the ullage is 2.3 feet?

7,067 ft-tons

While loaded as shown in the DEEP DRILLER Sample Load Form #4 (Drilling), all of the liquid mud is dumped. What is the new longitudinal metacentric height?

7.33 feet

The DEEP DRILLER, loaded as shown in the Sample Load Form #4 (Drilling), discharges a non-liquid load of 275.8 long tons from a position 130 feet above the keel, 40 feet forward of amidships, and 30 feet to port of the centerline. What is the new TCG?

0.46 foot

The DEEP DRILLER is loaded as shown in the Sample Load Form #2 (Ballast to Survival). What is the new longitudinal location of the center of buoyancy if all the bulk materials are discharged?

2.53 feet

The DEEP DRILLER is loaded as shown in the Sample Load Form #1 (Transit). According to the deck load graph, how much additional deck load could be added on the unit?

435.59 long tons

The DEEP DRILLER is planning to operate while loaded as shown in the Sample Load Form #3 (Preparing to Drill). What is the margin between KGT and maximum allowable KG?

5.24 feet

The DEEP DRILLER suffers minor flooding of the starboard pump room while in transit. If both starboard bilge pumps fail to dewater the pump room, you may use _____.

starboard drill water pump

The DEEP DRILLER, at 58.0 feet draft in sea water, places 275.8 long tons on board. What is the new draft?

60 feet

While underway in a field move with the lower hulls awash, a semisubmersible has a maximum allowable KG of 63.69 feet; KMT is 65.12 and KML is 64.92. The KGT is 56.13 and KGL is 55.89. What is the margin on the maximum allowable KG?

7.56 feet

The DEEP DRILLER is loaded as shown in the Sample Load Form #5 (Survival) when an unexpected slowly increasing starboard list and bow down trim occurs. A leak in 1S is found. By deballasting from ballast tanks 2S and 3S, the inclination slowly decreases. The increase in the longitudinal free surface correction is _____.

0.83 foot

On the DEEP DRILLER, among the valves to open when transferring ballast from Tank 10P to Tank 1S using the #2 ballast pump is valve _____.

36 Starboard

When two ballast pumps used for deballasting a single tank start cavitating, you should _____.

shut down one pump

For MODU's operating under the U.S. flag, the construction portfolio must contain _____.

approved welding procedures and welding test procedures

See REF1876

In MODU construction, beams are transverse girders which provide support to _____.
decks

The angle of loll is a stability term which applies to a floating MODU with _____.
negative initial stability

See REF776

The distance from the still water level (corrected for tides and storm surge) to the bottom of the hull of a MODU is the _____.
air gap

If the result of loading a MODU is an increase in the height of the center of gravity, there will always be an increase in the _____.
vertical moments

The DEEP DRILLER has a KGL of 53.16 feet while at a draft of 58.0 feet. Although there are no environmental forces, trim is 2.0 feet by the stern. What is the value of LCG?

2.16 feet

The DEEP DRILLER at a draft of 60.0 feet discharges 68.94 long tons of ballast. What is the new draft?

59.5 feet

The DEEP DRILLER, at a draft of 60 feet, has a KGT of 57.11 feet and TCG of 0.5 foot to port. What is the list angle?

5° port

The DEEP DRILLER, at a draft of 60 feet and a total vertical moment of 1,012,598 foot-tons, pumps 2,068.7 long tons of ballast overboard. The VCG of the discharged ballast is 15.0 feet. What is the new height of the center of gravity?

61.16 feet

The draft at the forward draft mark of a jack-up is 11 feet 3 inches while the draft at the aft draft mark is 12 feet 9 inches. The value of trim is _____.

1 foot 6 inches to the stern

An elevated jack-up weighs 14,000 kips. Its TCG is located 1.0 foot to starboard of the centerline. What would be the new TCG for the jack-up if the drill floor, weighing 700 kips, is skidded 10 feet to port?

0.50 foot starboard

When taking soundings on a floating MODU, the tape should be lowered and brought back quickly to _____.

lessen the effect of roll or pitch on the reading

A floating MODU with an initial negative metacentric height _____.

may lie at an angle of loll

See REF776

For the purposes of the International Rules of the Road, a jack-up drilling rig under tow is considered to be a _____.

vessel

The requirements for obstruction lights on mobile offshore drilling units apply on all waters _____.

over the Outer Continental Shelf and on waters under the jurisdiction of the United States

Certificates of Inspection for offshore drilling units are issued for a period of _____.

60 months

See REF1873

The master or person-in-charge of a MODU is required to submit a casualty report of an international grounding under what condition?

If it creates a hazard to navigation

See REF1880

The main function of the drawworks on a MODU is to _____.

lower and hoist the drill string into and out of the drilled hole

The storage device for nitrogen-pressurized hydraulic fluid, which is used in closing the blowout preventers is called the _____.

accumulator

See REF166

The pipe and special fittings used on floating offshore drilling rigs to establish a connection between the top of the wellbore, which is on the ocean floor, and the drilling equipment, located above the surface of the water, is called a _____.

marine riser pipe

During an evacuation from a MODU, an individual without the option of a survival craft or life raft should enter the water on the leeward side, except when _____.

there is hydrogen sulfide present

Each EPIRB required on a MODU shall be tested using the integrated test circuit and output indicator every _____.

month

See REF1885

Onboard mobile offshore drilling units, the key to the most rapid and effective response to a man overboard situation is _____.

well-conducted drills

To keep injured survivors warm in the water after abandoning a MODU, they should _____.

be placed in the middle of a small circle formed by the other survivors in the water

While drilling at 4,000 feet with casing set to 2,000 feet, the well kicks with mud weight in the hole. Mud pumps are shut down and the blowout preventer is closed. Compared to the drilling situation, the pressure on the casing seat will be _____.

increased

The DEEP DRILLER is loaded as shown in Sample Load Form #4. While the unit is deballasting, port valve 5 fails in the closed position. You may deballast from tank 2P by pumping from tank 9P by also opening valves 6 and _____.

20

The sense of smell cannot be depended upon to detect H₂S because _____.

the sense of smell is deadened by the gas

See REF1807

Survival practice in the MODU mooring system is to slack off the tensions on the leeward side and _____.

adjust as evenly as practical the windward tensions

When dragging of an anchor occurs, you must either reposition it at greater range or _____.

use a piggyback (backing) anchor

The primary danger in helicopter fires occurring on a MODU is _____.

burning jet fuel running into the quarters or other areas

Each hand portable, semi-portable, and fixed fire extinguishing unit on a MODU must be tested and inspected at least once every _____.

twelve months

See REF1835

Portable Halon fire extinguishers used on a MODU may be charged with _____.

HALON 1211 only

See REF1869

Each emergency light on a MODU must be marked with _____.

the letter "E"

See REF1898

In the case of an injury, causing a person to be incapacitated for more than 72 hours, the master or person-in-charge of a mobile offshore drilling unit must submit a report to _____.

the nearest Marine Safety or Marine Inspection Office

See REF1904

A fire main system must have enough fire hydrants so that each accessible space may be sprayed with _____.

at least two spray patterns of water

The heat generated by a fire can be transferred through a bulkhead or deck, as a direct result of _____.

conduction

See REF196

Spontaneous combustion is most likely to occur in _____.

rags soaked in linseed oil

See REF037

The four basic components of a fire are fuel, heat, oxygen and a chain reaction. Which of the following statements best describes what must be eliminated to extinguish a fire?

Any one component can be eliminated to extinguish a fire.

See REF181

The Muster List ("Station Bill") of a MODU must be signed by the _____.

person in charge

See REF1819

Fires on a MODU must be reported to the Coast Guard if there is death, injury resulting in more than 72 hours incapacitation, or property damage in excess of _____.

\$25,000

See REF097

On offshore drilling units, each fire station is required to be fitted with at least one spanner and at least one _____.

hose rack

Portable Halon extinguishers used on MODU's may use _____.

HALON 1211 only

See REF1869

On offshore drilling units, the minimum number of persons required to be trained in the use of fireman's outfits is _____.

What is the operating principal of a flash type evaporator?

Heated sea water is injected into a vacuum chamber.

A MODU which is required to carry an Oil Record Book must log in the book _____.

discharge of ballast or cleaning water from fuel tanks

See REF530

During an abandonment or drill, the first person to arrive at the survival craft should _____.

open the doors and prepare the craft for boarding

How often is a drill on the use of the line throwing appliance required to be held on a mobile offshore drilling unit?

Once every three months

What precaution should be taken when testing a line throwing gun?

Never remove the line from the rocket.

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

Before being certified by the American Bureau of Shipping, anchor chain must undergo _____.

a breaking test

The LWT anchor has two angular positions for the flukes. These are _____.

30° and 50°

See REF800

What is the "holding power ratio" of an anchor?

Maximum mooring line tension divided by the anchor's weight in air

Why should you soak an anchor?

It can prevent the anchor from slipping during pretensioning.

When the air temperature is just below 32°F, snow FIRST adheres to _____.

horizontal surfaces

When clear ice is present when the DEEP DRILLER is in transit, the vertical moments are increased by _____.

49,280 ft-long tons

It is proposed to moor the DEEP DRILLER in 600 feet of water in a region in which the effective wind velocity could reach 80 knots, significant wave height could reach 30 feet, and the current could be 1.5 knots. If these conditions occurred at the same time from the beam, the total environmental force would be _____.

620 kips

An ideal mooring system would be _____.

symmetrical and in equilibrium

The unit used to measure anchor line tensions in the offshore drilling industry is the _____.

Kip

In securing deck loads for an ocean tow, drill pipe should be _____.

provided with bulwarks at both ends of their bays

A tropical storm is building strength some distance from your MODU. Waves are coming from the east, with periods increasing from 5 seconds to 15 seconds. The swell is from the east. Where was the storm when these new swells were generated?

To the east of you

Each EPIRB required on a MODU shall be tested using the integrated test circuit and output indicator every _____.

month

See REF1885

An offshore drilling unit is required to carry on board an operations manual approved by the _____.

Coast Guard

The person in charge of a MODU shall insure that the fuel tank of each motor propelled lifeboat is emptied, and the fuel is changed at least once every _____.

12 months

On offshore drilling units all sleeping areas, mess areas, recreational and hospital areas that are adjacent to or immediately above a storage area or machinery space, paint locker, washroom, or toilet space must be made

odorproof

According to the MODU regulations, the capacity of a liferaft is required to be marked _____.

on a sign next to the liferaft

When weight-testing a davit-launched liferaft on a mobile offshore drilling unit, the test weight must be equivalent to the weight of the raft, its required equipment, and _____.

100% of the allowed capacity of the persons for the raft

A MODU must have a self-contained breathing apparatus to be used as protection from gas leaking from a refrigeration unit. To meet this requirement, you may use _____.

the same self-contained breathing apparatus required with the fireman's outfit

See REF1862

When a MODU is involved in a casualty, the cost of property damage includes _____.

the cost of labor and material to restore the property to the service condition which existed prior to the casualty

What must be entered in the unofficial logbook by the Master or person in charge of a mobile offshore drilling unit after conducting a fire drill?

The condition of all fire fighting equipment, watertight door mechanisms, and valves used during each drill

See REF1595

When are fore and aft draft readings required to be entered in the unofficial logbook of a MODU?

Prior to getting underway

A MODU is required to carry an Oil Record Book, and must maintain the book on board for _____.

three years

See REF530

On a MODU, the possibility of a blowout makes which type of diesel engine shutdown desirable?

Air inlet shut off.

On the cargo manifest, the gross weight of a box containing cargo is the weight of the _____.

cargo and box

See REF482

A MODU helicopter landing deck on which fueling operations are conducted must have a fire protection system that is capable of discharging at 100 psi pressure a foam spray of at least _____.

50 gallons per minute

While off-loading from an offshore supply vessel with the crane, the wind increases in strength and changes direction significantly, you should _____.

move the offshore supply vessel to the downwind side

The maximum draft to which a MODU can legally be submerged is indicated by the _____.

Load Line mark

The free surface corrections depend upon the surface area of the free liquids and the _____.

displacement of the MODU

The free surface effects of a partially filled tank in a floating MODU, increase with the _____.

surface area of the fluid in the tank

A semisubmersible at a draft of 19 feet 9 inches arrives on location planning to deploy eight mooring lines. Each anchor weighs 15 long tons and each mooring line consists of 3,000 feet of 3-inch chain (89.6 lbs/ft). If no ballast corrections are made, what is the expected draft if the average TPI is 60?

18 feet 3 inches

The DEEP DRILLER, while loaded as shown in the Sample Load Form #4 (Drilling), suffers damage to the port center column below the waterline. Among the tanks from which you should pump is tank _____.

9P

The DEEP DRILLER, loaded as shown in Sample Load Form #2 (Ballast to Survival), suffers major damage which results in flooding in tank 10S. Your best countermeasure is to _____.

pump from 9S

Compliance with the terms of the load line certificate on a MODU is the responsibility of the _____.

Master or Offshore Installation Manager

See REF487

It is vital to the safety of the elevated COASTAL DRILLER that the hull be kept above _____.

wave action

In the DEEP DRILLER, the transverse and longitudinal free surface moments for entry into the daily load form are obtained _____.

from tank tables

While in ocean transit, the COASTAL DRILLER has a roll period of four seconds. What would be the largest angle each side of vertical that does not exceed the design limit of the legs?

2.0 degrees

The rotary of the COASTAL DRILLER is located 36 feet aft of the transom and 6 feet to starboard of the centerline. The hook load is 300 kips. Considering the changes to lightweight shown in the Operating Manual, the maximum amount of setback is _____.

224 kips

The COASTAL DRILLER, in transit with winds expected to exceed 70 knots, must lower the legs to 60.5 feet below the hull in order to meet the requirements for leg strength and _____.

stability

In an emergency, the jacking system on the COASTAL DRILLER is capable of elevating the unit with a loading of

_____.
17,280 kips

The COASTAL DRILLER has a trim of 2.13 feet by the stern. The draft in sea water at the forward draft marks is observed to be 8.0 feet. The KML is _____.

286.27 feet

Preload tank 22B on the COASTAL DRILLER contains 5.0 feet of preload. It is decided to complete filling the tank. What is the TCG of the added liquid?

65.83 feet

The COASTAL DRILLER, elevated in 150 feet of water with 0 knots current, 10 foot waves, and wind speeds of 70 knots may continue drilling if the maximum leg reaction is less than _____.

6,080 kips

The COASTAL DRILLER is loaded as shown in the Sample Load Form #1 (Rig Move). If the contents of the #1 drill water tank are discharged, what would be the new LCG?

120.42 feet AF0

When the COASTAL DRILLER is loaded as shown in the sample load form #3 (drilling), the hook load is placed in the pipe racks. What would be the new variable load?

3,658.8 kips

Because there is a possibility of fuel oil being discharged overboard from a full fuel oil tank, it is decided to transfer 25 kips from tank #14 to tank #13. See COASTAL DRILLER Sample Load Form #1 (Rig Move). What would be the change in longitudinal free surface moments?

674 ft-kips increase

The COASTAL DRILLER is loaded as shown in the Sample Load Form #1 (Rig Move). What is the new Longitudinal Free Surface Correction (FSCL) if the entire contents of drill water tanks 6 and 7 are discharged?

1.63 feet

When preloading the COASTAL DRILLER, the maximum total weight shall not exceed _____.

21,497 kips

The COASTAL DRILLER, loaded as shown in the Sample Load Form #4 (Storm), discharges all the bulk in the four bulk tanks. What is the new TCG?

1.11 feet

While on an ocean tow, the COASTAL DRILLER is threatened with the approach of a severe storm. Including the time required to place the generators on-line, the approximate time required to lower the legs from a TOC (tip-of-can) position of 12.38 feet to 60.5 feet is _____.

47 minutes

The COASTAL DRILLER, in transit with winds less than 70 knots, has a draft of 10 feet 8 inches. The VM are 541,257 ft-kips, FSML are 32,000 ft-kips, and FSMT are 24,000 ft-kips. The margin on the maximum allowable KG is _____.

23.7 feet

You are operating a liftboat. Before starting jacking operations you should _____.

have all personnel don life jackets

A semisubmersible with a displacement of 20,000 tons and a KG of 60.0 feet loads 300 tons at a VCG of 120 feet. To maintain draft, ballast is discharged from a height of 20 feet. What is the change in KG?

1.5 feet upward

Among the equipment included in the DEEP DRILLER lightweight are the loading hoses, derrick, traveling block in the lowest position, anchors, all machinery with liquids to normal operating level, and _____.

mooring chain

The sounding in fuel oil tank 4P on the DEEP DRILLER is 8.75 feet. What are the longitudinal moments for this amount of fuel?

3,992 ft-long tons

Until a change to lightweight has been approved, the weights and center of gravity locations for the changes to lightweight shown in the permanent record for the Deep Driller are treated as _____.

variable load

For the DEEP DRILLER, the maximum permissible offset which can be tolerated while drilling is _____.

6% of water depth

The DEEP DRILLER, while loaded as shown in the Sample Load Form #4 (Drilling), suffers damage to the starboard center column below the waterline. Pumping from tanks 2S and 9S is not sufficient to prevent increasing starboard list. You should consider counterflooding in tank _____.

C2BP

While loaded as shown in Sample Load Form #5 (Survival), an estimated 250 long tons of snow and ice accumulates on the DEEP DRILLER at an estimated height of 127 feet. Assuming no corrective ballasting, what is the new draft?

46'-09 3/4"

For the DEEP DRILLER, what are the transverse moments for a sounding of 5 feet in tank C3P?

-7,130 foot-tons

The DEEP DRILLER is loaded as shown in Sample Load Form #4 (Drilling). What would be the new sum of transverse moments for the Stores & Supplies (Table 6) if paint weighing 3.48 tons is added to the paint locker?

000 foot-tons

The DEEP DRILLER, loaded as shown in the Sample Load Form #4 (Drilling), discharges a non-liquid load of 275.8 long tons from a position 130 feet above the keel, 40 feet forward of amidships, and 30 feet to port of the centerline. What is the new GML?

6.84 feet

When the ullage is 6.4 feet in P-Tank #5 for the Deep Driller, what is the value of the longitudinal moment?

-4,249 foot-tons

How much additional solid weight could be loaded at a VCG of 189.7 feet on the DEEP DRILLER while loaded as shown in the Sample Load Form #4 (Drilling)? Assume ballast added or discharged to maintain draft is done so at 15 feet above the baseline.

314.2 long tons

The DEEP DRILLER is loaded as shown in the Sample Load Form #3 (Preparing to Drill). If all the liquid mud (see table 8) is dumped, what would be the new height of the longitudinal metacenter?

61.19 feet

The DEEP DRILLER, loaded as shown in Sample Load Form #1 (Transit), suffers minor damage which results in flooding in tank 1S. You may pump from _____.

1P

The DEEP DRILLER, at 58.0 feet draft in sea water, places 200 long tons on board. What is the new draft?

59.45 feet

The DEEP DRILLER is loaded as shown in the Sample Load Form #1 (Transit). If weather conditions make it necessary to ballast down to survival, how much ballast would be required?

4,086.5 long tons

To effectively use the crossover system on the DEEP DRILLER to pump from the low side using a high side ballast pump, transverse inclinations should not exceed.

2°

On the DEEP DRILLER, among the port-side valves to open when deballasting from ballast tank 2P is valve _____.

5

Among the valves that must be opened on the DEEP DRILLER to pump bilge water out of the port pump room using both bilge pumps is valve _____.

41

A welding procedure used for joining dissimilar metals used on a MODU would be recorded in the _____.

construction portfolio

See REF1877

The deck plating on a MODU is supported primarily by deck longitudinals and deck _____.

beams

The maximum angle at which the intact stability curves are valid for MODU's is the angle for _____.

downflooding

The free surface effects of a partially-full tank in a floating MODU increase with the _____.

surface area of the fluid in the tank

Laying down drill pipe from the derrick of a semisubmersible on location reduces the _____.

natural roll period

The DEEP DRILLER at survival draft loads 2,068.1 long tons of ballast. What is the new draft?

60.0 feet

The DEEP DRILLER, at a draft of 55 feet, has a KGT of 53.05 feet and TCG of 0.5 foot to starboard. What is the list angle?

2.9° Starboard

A jack-up 180 feet in length with the LCF at 120 feet AF0 has a true mean draft (draft at LCF) of 10 feet. If the trim is 3 feet by the stern, what is the draft at the stern?

11.0 feet

A jack-up, while level in transit at 10 feet draft, experiences a wind gust which results in a starboard draft of 11 feet 6 inches. What is the heel?

3 feet to starboard

An elevated jack-up weighs 14,000 kips. The drill floor, weighing 700 kips, is skidded 10.0 feet to starboard. The change in TCG is _____.

0.50 foot starboard

When taking soundings on a MODU, coating the tape with chalk helps to _____.

better identify the correct reading

What must be accurately determined to assess the potential for progressive flooding after a MODU has been damaged?
The integrity of the watertight boundaries.

For the purposes of the International Rules of the Road, a non-self-propelled, semisubmersible drilling unit under tow is considered to be a _____.
vessel

What color are obstruction lights on mobile offshore drilling units that are located on the waters of the U.S. Outer Continental Shelf seaward of the line of demarcation?
White

How long must the records of tests and inspections of fire fighting equipment for a MODU be retained on board?
Three years
See REF1595

The two courses of action to take if the underwater hull of a MODU is severely damaged, are to plug the opening and to _____.
establish and maintain flooding boundaries
See REF164

For most MODU engines, the fuel is _____.
diesel oil

A casing string that is run below the previous casing string, but does not extend to the wellhead is called a _____.
liner

The element used to keep weight on the bit at a constant value in spite of up-and-down movement of a MODU during floating drilling operations is the heave or drill string _____.
compensator

During an evacuation from a MODU, an individual without the option of a survival craft or life raft should enter the water on the leeward side, except when _____.
there is a severe list to the windward side of the MODU

On offshore drilling units, the lifeboat fuel tanks must be emptied and the fuel changed at least once every _____.
12 months
See REF1886

Each buoyant work vest on a MODU must be _____.
Coast Guard approved
See REF1882

The order to abandon a MODU should only be given by the _____.
Offshore Installation Manager

The most accurate method for measuring drilling mud required to fill the hole when drill stem is removed is by use of a _____.
trip tank

The Coast Guard requires machinery spaces and enclosed mud handling spaces to have _____.
remote ventilation shutdowns
See REF1824

What additional precautions should be taken when making temporary repairs to a MODU that is operating when hydrogen sulfide is present?

Provide respiratory protection and monitoring.

See REF1807

Survival practice in the mooring system is to slack off the tensions on the leeward side and _____.
adjust as evenly as practical the windward tensions

While drilling loaded as shown in Sample Load Form #4 (Drilling), the DEEP DRILLER suffers a sudden unexpected inclination to port and forward. Strong wind and high waves are from the starboard quarter. Among the possible causes, you should consider _____.

failure of mooring lines 5 or 6

A fixed CO2 system on a MODU with a capacity of over 300 lbs (136 kilograms) CO2 which protects spaces other than tanks must have _____.

an audible alarm and time delay

The inspection of portable fire extinguishers on a MODU must be _____.

recorded by the person-in-charge

See REF1844

Due to the hazards involved with Halon extinguishers on a MODU, the size II extinguisher may only be used _____.

outside

See REF1869

The Muster List ("Station Bill") of a MODU must be signed by the _____.

person-in-charge

See REF1819

According to regulations, the master or person-in-charge of a MODU is required to submit a report of a loss of life _____.

to the nearest OCM/I

See REF1905

A tank which has been sealed for a long period of time can be dangerous because _____.

steel surfaces consume oxygen by rusting

See REF1908

Combustible material which is stored adjacent to a compartment where there is a fire, may also be ignited. This ignition can occur by _____.

heat radiated from the bulkhead by the adjacent fire

See REF196

By definition, spontaneous combustion is a result of _____.

chemical reactions within a substance

See REF037

The four basic components of a fire are chain reaction, heat, fuel, and _____.

oxygen

See REF181

The signal for fire alarm on a MODU must be indicated _____.

on the Muster List ("Station Bill")

See REF1830

The survival craft's engine is fueled with _____.
diesel oil

While retrieving the survival craft, the engine should be stopped _____.
when the craft clears the water
See REF286

A solution to overcome tripping defects is an arrangement of special plates on either side of the flukes, designed to set them in the correct tripping position. These special plates are called _____.
palms

The American Petroleum Institute recommends that connecting links and anchor shackles be inspected using _____.
magnetic particle inspection

What happens to the efficiency of an anchor when it is moved from sand to mud?
The efficiency decreases.

Where do fatigue failures of wire rope mooring lines usually occur?
Near the socketed end fitting adjacent to the anchor

In ballasting to survival draft, while in transit, due to extreme wind and wave loads, thrusters or propulsion, if available, should be used to _____.
maintain vessel heading

On a semisubmersible drilling unit, increasing riser tension increases _____.
KG

In storm conditions, with the wind and waves from the port bow of the DEEP DRILLER in 600 feet water depth, the offset is 9%. Completely slacking mooring lines 5 and 6 reduces the offset to _____.
6.5 (%)

A mooring system that results in a spread system without anchor buoys is called a _____.
permanent chasing system

The length of chain between the anchor and the end of the pendant line is called the _____.
crown chain

The initial tension set in the mooring system of a MODU establishes the _____.
distance the unit can be offset from the wellbore before the restoring forces oppose the environmental forces

Medical treatment aboard a MODU should not go beyond examination and emergency care without first consulting _____.
a medical doctor

The person on a MODU who is responsible for maintaining the engineering spaces in a clean and sanitary condition is the _____.
Chief Engineer, or engineer in charge if no chief engineer is required
See REF1831

Immersion suits must be stowed _____.
where readily accessible
See REF269

The immersion suit requirements apply to MODU's operating in all waters above _____.

32°N and below 32°S

See REF269

Where are self-closing doors required on a MODU?

In each stair tower

See REF1915

Each hand portable fire extinguisher on a MODU must be marked with _____.

an identification number different from other extinguishers on the unit

See REF1825

A weather tight door on a MODU must not allow water to penetrate into the unit in _____.

any sea condition

See REF1872

A person who holds a foreign license can serve as the ballast control operator to meet manning requirements on a MODU on waters outside U.S. jurisdiction until the _____.

MODU returns to a U.S. port

The Master or person in charge of a MODU is required to submit a casualty report of an intentional grounding under what condition?

If it creates a hazard to navigation

In the case of a casualty involving a MODU, the Master, owner, agent or person in charge shall make the records required by regulation available upon request to _____.

any Coast Guard official authorized to investigate the casualty

What must the Master or person in charge of a MODU enter in the logbook after conducting a boat drill?

Which survival craft was used in the drill

Who is responsible for maintaining the logbook on a mobile offshore drilling unit?

The person in charge

When hydrogen sulfide is burned (flared) on a MODU, which of the following conditions can be expected to occur?

Only 80% of the hydrogen sulfide will be converted to sulfur dioxide or free sulphur.

See REF1807

When referring to quantity of barite in a P-tank, ullage is the _____.

distance of the barite surface below the tank cover

See REF015

A small fuel spillage has occurred during helicopter refueling. After the leak has been stopped and fire-control personnel have been notified and are standing by, the next step is to _____.

wash spilled fuel away with a flood of water

When using a crane for transferring personnel in a basket, the load hook must be equipped with a _____.

safety latch

The document certifying the correctness of the load line marks on a MODU is called the _____.

Load Line Certificate

See REF487

Adding the transverse free surface correction to the uncorrected height of the center of gravity of a MODU yields

_____.
'KGT'

Subtracting the height of the center of gravity corrected for longitudinal free surface effects from the height of the longitudinal metacenter of a MODU yields _____.

'GML'

A floating jack-up with displacement of 15,000 kips has its LCG 108 feet aft of frame zero (AFO). If 400 kips are loaded at 120 feet AFO and 800 kips are loaded 150 feet AFO, what is the new LCG?

110.4 feet

The DEEP DRILLER, while loaded as shown in the Sample Load Form #4 (Drilling), suffers damage to the port forward column below the waterline. You should pump from tank _____.

1P

During counterflooding to correct a severe list or trim aggravated by an off-center load, a MODU suddenly takes a list or trim to the opposite side. You should _____.

immediately stop counterflooding

The maximum draft to which a mobile offshore drilling unit may be safely loaded is called _____.

load line draft

Environmental loading consists of the forces caused by wind, waves, and _____.

current

What is the increase in transverse moments for the Coastal Driller if 2.0 feet of drill water is transferred from a full drill water tank #23 to an empty drill water tank #6?

4783 foot-kips

While going on location in 200 feet water depth when the roll angle of the COASTAL DRILLER is 2.5 degrees, the roll period should be longer than _____.

13.0 seconds

What is the maximum weight permitted on the cantilever pipe racks for the COASTAL DRILLER?

500 kips

During a long ocean tow of a jack-up the clearance in the upper guide should be reduced to zero to restrain the leg and eliminate the impact loads from dynamic responses. This is best done by _____.

tapering the upper guides and building up the teeth

In using the Allowable Wind and Wave Charts for the COASTAL DRILLER, which of the three leg reactions is required?

Highest

The COASTAL DRILLER's ability to meet the damage stability criteria depends on maintaining a watertight integrity, KGL and KGT less than maximum allowed, level attitude, and displacement less than _____.

14,158 kips

When the COASTAL DRILLER is level at a draft of 10.5 feet, what is the value of the LCG?

119.44 feet

While loaded as shown in the COASTAL DRILLER sample load form #3 (drilling), 200 kips are discharged from 60 feet AFO and 30 feet to starboard of the centerline. What is the starboard leg reaction?

5,393 kips

What is the change in the vertical moments (excluding free surface effects) for the COASTAL DRILLER if 2.0 feet of drill water is transferred from a full drill water tank #23 to an empty drill water tank #6?

-253 foot-kips

A jack-up 210 feet in length is level during transit. The LCF is 140 feet aft of the bow. How much weight should be applied at the stern to re-level the jack-up if 75 kips is applied at the bow?

150 kips

The COASTAL DRILLER is observed to be level at a draft of 10 feet 6 inches. At the same time, the calculated load form shows the displacement to be 13,445 kips, total longitudinal moments 1,613,466 foot-kips, and total transverse moments -10,000 foot-kips. What is the transverse location of the missing load?

46 feet starboard of the centerline

The COASTAL DRILLER is loaded as shown in the Sample Load Form #1 (Rig Move). What is the margin on the maximum allowable KG if winds increase to greater than 70 knots, and the TOC is changed to the recommended value?

1.0 foot

While the COASTAL DRILLER is in transit at a draft of 10 feet 6 inches, a severe storm is predicted within 12 hours. VM are 541,257 ft-kips, FSML are 32,000 ft-kips and FSMT are 24,000 ft-kips. How much should the KGL be lowered to satisfy the maximum allowable KG criteria?

1.96 feet

The COASTAL DRILLER, loaded as shown in the Sample Load Form #3 (Drilling), discharges the bulk in Bulk Tanks 1 and 2. What is the new TCG?

0.99 feet

When the COASTAL DRILLER is afloat, the water for the saltwater eductor system is provided by _____.

fire pumps

While elevated, the COASTAL DRILLER prepares for a severe storm. When the setback is lowered and placed in the pipe racks, it is considered as part of the _____.

variable loads

After jacking down your liftboat you have an unexpected list. You find that the only cause of this list must be a flooded leg. Raising the flooded leg further would adversely affect the boats stability by _____.

raising the KG and increasing the draft which may put you in an unsafe operating condition

A MODU with a displacement of 15,000 kips has a KG of 20 feet. A load of 300 kips is shifted from a VCG of 100 feet to a VCG of 10 feet. How far does the KG move?

1.8 feet downward

A semisubmersible, displacing 20,500 long tons, has vertical moments of 1,060,000 foot-long tons. What is the change in KG if 500 long tons are discharged from a VCG of 120 feet?

1.71 feet downward

The lightweight vertical moments for the DEEP DRILLER are _____.

680,914 ft-long tons

The marine riser on the DEEP DRILLER should be disconnected if it appears the ball joint angle will exceed 10° or the mooring line tensions will exceed _____.

522 kips

With no environmental forces on the DEEP DRILLER, the average of the starboard drafts is 59.0 feet, and the average of the port drafts is 61.0 feet. KGT is 52.84 feet. What is the value of TCG?

-0.16 foot

In anticipation of heavy weather, it is decided to deballast the DEEP DRILLER to survival draft. The marine riser should be disconnected, pulled, and laid down. After doing so, the riser tension will be _____.

zero

What is the minimum required GMT for the DEEP DRILLER in winds less than 70 knots while at a draft of 60 feet?

4.34 feet

What is the VCG for the cement in P-Tank #1 on the DEEP DRILLER if the ullage is 6.4 feet?

119.81 feet

While loaded as shown in the DEEP DRILLER Sample Load Form #4 (Drilling), all of the liquid mud is dumped. What is the new position of the longitudinal center of buoyancy?

2.29 feet

The DEEP DRILLER, loaded as shown in the Sample Load Form #4 (Drilling) discharges a non-liquid load of 275.8 long tons from a position 130 feet above the keel, 40 feet forward of amidships, and 30 feet to port of the centerline. What is the new KG?

52.61 feet

The DEEP DRILLER is loaded as shown in the Sample Load Form #1 (transit). What is the new metacentric height corrected for transverse free surface effects if the entire contents of Salt Water Ballast Tanks 1P and 1S are discharged? (Use KMT = 375.38 feet)

306.79 feet

While loaded as shown in the DEEP DRILLER Sample Load Form #4 (Drilling), a severe storm threatens. What is the improvement in KGL if all the mud is dumped?

1.60 feet

The DEEP DRILLER is operating at a draft of 60 feet. There is 11.5 feet of drill water in each of the drill water tanks (5P and 5S). What would be the improvement in KGL if 5S is filled from 5P?

0.08 foot

The DEEP DRILLER, loaded as shown in Sample Load Form #5 (Survival), suffers major damage which results in flooding in tank C3S. Your best countermeasure is to _____.

pump from 8S

The DEEP DRILLER, at 60.0 feet draft in sea water, discharges 275.8 long tons. What is the new draft?

58 feet

The DEEP DRILLER is loaded as shown in Sample Load Form #4 (Drilling). What would be the new sum of FSML for Fresh Water if the entire contents of Drill Water Tank #5P are transferred to Tank #5S?

317 ft-tons

The DEEP DRILLER is loaded as shown in the Sample Load Form #1 (Transit). Weather conditions require ballasting to survival draft. Assume that 4087 long tons of ballast are added at an average VCG of 8.32 feet. What would be the value of uncorrected KG?

51.65 feet

The sounding in tank 1P of the DEEP DRILLER is 7.58 feet. What are the longitudinal moments for this quantity of ballast?

27,652 ft-long tons

The DEEP DRILLER, at a draft of 60 feet, has 35,000 ft-tons of longitudinal moments. How much ballast should be transferred between tanks 1P and 10P to level the unit longitudinally?

25.5 long tons

While in transit, the DEEP DRILLER suffers flooding in the starboard pump room. Both starboard bilge pumps are inadequate to dewater the pump room. You may supplement the performance of the bilge pumps by using the _____.

starboard drill water pump

The decks of a MODU are supported by transverse members called _____.

deck beams

In MODU construction, bulkheads in the quarters are generally _____.

non-structural

The true mean draft of a MODU is the draft _____.

at the center of flotation

For a MODU with list, a decrease in GMT will cause the angle of inclination to _____.

increase

When a MODU is inclined at a small angle, the center of buoyancy will _____.

move toward the low side

The height of the transverse metacenter for a MODU is 62.44 feet. The height of the center of gravity is 56.10 feet, and the transverse free surface correction is 1.21 feet. What is the value of the metacentric height corrected for transverse free surface effects?

5.13 feet

What is the trim of a jack-up with a forward draft of 12 feet and an after draft of 13 feet?

1.0 foot by the stern

The DEEP DRILLER departs a fresh water port at a draft of 19.5 feet. What will be the draft in sea water?

19.1 feet

The DEEP DRILLER, while loaded as shown in the Sample Load Form #5 (Survival) loads an additional 137.88 long tons. The resulting trim by the stern is 2 feet and the list to port is 3 feet. What is the draft at the port forward draft mark?

46 feet 6 inches

A jack-up displacing 15,000 kips has a KG of 20 feet. The legs weighing 3,500 kips are lowered 100 feet. What is the new KG?

-3.33 feet

What is the purpose of a striker plate?

Provides landing surface for the sounding bob

See REF170

Although KG for a MODU in lightweight is relatively high, the vessel is stiff because _____.

KM is high

Where will you find the requirements for the lights that must be displayed on a mobile offshore drilling unit that is being towed?

COLREGS

A mobile offshore drilling unit is on the waters of the U.S. Outer Continental Shelf. It has a length of 220 feet and a breadth of 190 feet. Where must the obstruction lights be located?

On each corner of the rig

You are standing radio watch and monitoring VHF Channel 16 when you receive a call to your rig, TEXAS STAR, from a supply boat. What is the proper way to answer this call?

'This is TEXAS STAR, WSR 1234, reply Channel 10.'

On an offshore drilling rig, the pumps which circulate drilling fluid through the drill string while drilling are called the _____.

mud pumps

What type of test determines the pressure at which the formation immediately below the last set casing will take fluid?

Leak-off

In very deep water drilling, it becomes necessary to reduce tension caused by the weight of the riser joints. This is accomplished by using a(n) _____.

buoyant riser

What is the female section of a tool joint called?

Box

The person-in-charge shall insure that each lifeboat on a MODU is lowered to the water, launched, and operated at least once every _____.

three months

See REF1883

After being launched from MODUs, totally enclosed survival craft which have been afloat over a long period require _____.

regular checks of bilge levels

If you have to jump in the water when abandoning a MODU, your legs should be _____.

extended straight down and crossed at the ankles

See REF243

Why must the drilled hole be filled with drilling mud when tripping the drill string out of the hole?

To prevent reduction of fluid head on the formations

Port ballast pump #1 on the DEEP DRILLER has failed. If you want to deballast the forward-port column using port ballast pump #2, it is necessary to open valves _____.

3, 34, 35, 36, 46, and 48

The Lethal Concentration of H₂S that will cause death with short-term exposure is a minimum of _____.

700 ppm

See REF1807

What is the percentage of oxygen in a typical sample of uncontaminated air?

21 percent

See REF1809

The most doubtful and unpredictable factor in a mooring system is the _____.

ability of the anchors to hold in a seabed

In plugging submerged holes on a MODU, rags, wedges, and other materials should be used in conjunction with plugs to _____.

reduce the water leaking around the plugs

Each hand portable fire extinguisher carried on a MODU must be marked with _____.

an identification number different from other extinguishers on the unit

See REF1825

Each fire hydrant serving the machinery spaces of a MODU containing oil fired boilers, internal combustion machinery, or fuel oil units, must be equipped with a _____.

low velocity spray applicator

See REF1896

Each fireman's outfit and its spare equipment on a MODU must be stowed _____.

in a separate and accessible location

See REF1821

In the event of a casualty to a MODU, who is responsible to make records available to the Coast Guard official authorized to investigate the casualty?

The owner

See REF1841

A fire cannot exist if which of the listed elements is removed from the fire?

Oxygen

Fuel

Heat

Any of the above.

See REF181

Fusible link fire dampers are operated by _____.

the heat of a fire melting the link

See REF196

Hydrogen sulfide gas has an odor of "rotten eggs" and can be extremely toxic and dangerous when above threshold limit values because _____.

it will paralyze the respiratory system and cause suffocation

See REF1807

The most likely location for a liquid cargo fire to occur on a tanker would be _____.

in the pumproom

See REF137

Through which of the listed processes is sufficient heat produced to cause spontaneous ignition?

Heat of oxidation

See REF1912

The primary danger in helicopter fires on a MODU is _____.

burning jet fuel running on to quarters or other areas

What must be located on the discharge side of the pump in a fire main system?

Pressure gauge

The minimum number of portable C-II fire extinguishers required on the drill floor of a MODU is _____.

2

See REF1867

On offshore drilling units where foam systems are installed on the heliport, the system must be able to discharge continuously for at least _____.

5 minutes

Why does a centrifugal bilge pump require priming?

Lack of ability to lift water level to impellers

Under the regulations implementing MARPOL, a mobile offshore drilling unit is required to have an International Oil Pollution Prevention (IOPP) Certificate when the unit _____.

engages in a voyage to a port of another country which is a party of MARPOL

See REF1827

After you activate your emergency position indicating radio beacon, you should _____.

leave it on continuously

If a davit-launched liferaft aboard a MODU cannot be launched because of damage to the davit, you should _____.

roll the liferaft over the side

To disengage a survival craft suspended from the cable above the water, you must pull the safety pin and _____.

pull the hook release handle and use the ratchet bar

Who is responsible for lowering the survival craft?

Helmsman

An anchor winch should be equipped with mechanical brakes capable of holding _____.

the full breaking strength of the mooring line

The angle between the flukes and the shank of an anchor is called the _____.

fluke angle

What happens to the pulling power of a winch when retrieving wire rope?

It decreases

Which grade of anchor chain is generally used on floating drilling vessels?

Oil Rig Quality (stud link)

In deballasting to survival draft because of extreme wind and wave loads, thrusters or propulsion, if available, should be used to _____.

reduce windward mooring line tensions

On a semisubmersible drilling unit, decreasing riser tension reduces _____.

KG

In storm conditions, with the wind and waves from the starboard bow of the DEEP DRILLER in 600 feet water depth, the offset is 8%. Completely slacking mooring lines 7 and 8 reduces the offset to _____.

5.0 (%)

A permanent chain chasing system is used to _____.

run and retrieve anchors

The safest device used to secure the end of the pendant wire when it is initially passed to the anchor handling vessel is a _____.

hydraulic deck stopper

What could cause a significant difference between actual chain tension and the tension measured by the tensiometer?

The chain contacting a chock or fairlead between the tensiometer and the lower swivel fairlead

Apparent wind speed blowing across a MODU under tow can be measured by a(n) _____.

anemometer

See REF969

How often must the emergency generator be tested on a mobile offshore drilling unit?

Once each month

See REF1832

On surface type offshore drilling units, each survival craft must be capable of being launched to the water at the minimum operating draft, under unfavorable conditions of trim and with the unit listed not less than _____.

20°

The person in charge shall insure that each lifeboat on a MODU is lowered to the water, launched, and operated at least once every _____.

3 months

Locations on a MODU where flammable hydrocarbon gas or vapors may accumulate due to drilling operations are defined as _____.

classified locations

See REF1846

Each emergency light on a MODU must be marked with _____.

the letter "E"

See REF1898

After cranes have been installed on offshore drilling units the hooks, hook block, slings, rib and other rigging must be load tested. This test must be performed once each.

48 months

The person assigned to command a lifeboat or inflatable liferaft on a MODU shall have a list of the persons assigned to the lifeboat or liferaft. The list shall include each person's _____.

duties

The Master or person in charge of a MODU is required to submit a casualty report of an intentional grounding when it _____.

creates a hazard to the vessel

Mobile offshore drilling units not required to have an official logbook shall _____.

maintain an unofficial logbook

See REF1595

Regulations require that line throwing equipment on mobile offshore drilling units be tested at regular intervals. What entry should be made in the logbook?

Only the date of the test

If you observe any situation which presents a safety or pollution hazard during fuel transfer operations on a MODU, which of the listed actions should be taken first?

Shutdown the transfer operations.

The lethal concentration of hydrogen sulfide that will result in death with short-term exposure is a minimum of _____.

700 ppm

See REF1807

When cargo aboard a jack-up in transit becomes adrift, the tow vessel should be asked to _____.

turn into the seas

At a refueling area or fuel facility, smoking or any flame or spark is prohibited _____.
within 50 feet

How wide must the safety net be that is required on the unprotected perimeter of the helicopter landing deck on a MODU?
1.5 meters

Periodic surveys to renew the load line assignment for a MODU must be made at intervals not exceeding _____.
five years
See REF488

Although 'KG' for a MODU in a lightweight condition is relatively high, the vessel is stiff because _____.
'KM' is high

Subtracting the height of the center of gravity corrected for transverse free surface effects from the height of the transverse metacenter of a MODU yields _____.
'GMT'

A floating jack-up with displacement of 15,000 kips has its LCG 106 feet aft of frame zero (AF0). If 200 short tons are loaded at 20 feet AF0 and 400 short tons are loaded 149 feet AF0, what is the new LCG?
106.0 feet

The DEEP DRILLER, while loaded as shown in the Sample Load Form #4 (Drilling), suffers severe damage to the starboard forward column below the waterline. You should pump from tank _____.
1S

If a MODU takes a sudden severe list or trim from an unknown cause, you should FIRST _____.
determine the cause before taking countermeasures

A semisubmersible with a positive GM, and TCG located starboard of the centerline, inclines to an angle of _____.
list

For stronger leg support when the COASTAL DRILLER is elevated, locate a set of horizontal leg braces as near as possible to the _____.
center of each lower hull guide

What is the port leg reaction for the COASTAL DRILLER if the total weight is 15,000 kips, LCG is 120 feet, and TCG is 1.0?
4,909 kips

While in 150 feet water depth when the single amplitude roll angle of the COASTAL DRILLER is 2 degrees, the safe platform roll period for going on location should be longer than _____.
0.5 second

What is the maximum permitted hook load for the COASTAL DRILLER when 450 kips are in the setback and no other loads are on the cantilever?
529 kips

The COASTAL DRILLER is experiencing a single amplitude roll angle of 3 degrees and a roll period of 10 seconds. What is the maximum water depth that can be used for going on location?
95 feet

On the COASTAL DRILLER, hook load includes the weight of the _____.
drill string

The COASTAL DRILLER's ability to meet the damage stability criteria depends on maintaining watertight integrity, displacement less than 14,158 kips, level attitude, and KGT and KGL less than _____.
the maximum allowed

The longitudinal location of the center of flotation for the COASTAL DRILLER has a value of _____.
119.44 feet AF0

The COASTAL DRILLER, elevated in 200 feet of water with 2 knots current, 30 foot waves, and wind speeds of 60 knots may continue drilling if the maximum leg reaction is less than _____.
5,870 kips

What is the increase in transverse free surface moments for the COASTAL DRILLER if 2.0 feet of drill water is transferred from a full drill water tank #23 to an empty drill water tank #6?
3,914 foot-kips

What is the weight of 100 barrels of 17 pound per gallon drilling mud?
71.4 kips

Because there is a possibility of fuel oil being discharged overboard from a full fuel oil tank, it is decided to transfer 25 kips from tank #14 to tank #20. See COASTAL DRILLER Sample Load Form #1 (Rig Move). What would be the change in longitudinal moments with this transfer?
565 ft-kips

The COASTAL DRILLER is loaded as shown in the Sample Load Form #1 (Rig Move). What is the new LCG if the entire contents of drill water tanks 6 and 7 are discharged?
120.10 feet

While the COASTAL DRILLER is in transit at a draft of 10 feet 6 inches, a severe storm is predicted within 12 hours. VM are 520,462 ft-kips, FSML are 26,000 ft-kips, and FSMT are 25,000 ft-kips. How much should the KG corrected for free surface effects be lowered to satisfy the maximum allowable KG criteria?
0.00 feet

The COASTAL DRILLER, loaded as shown in the Sample Load Form #3 (Drilling), dumps all the mud in pits 1, 2, 3, and 4. What is the new TCG?
-0.26 foot

When extracting the legs from the soil, the hull of the COASTAL DRILLER may be pulled down until the draft is _____.
one foot deeper than calculated afloat draft

The routes to be used during evacuation of the COASTAL DRILLER are shown in the _____.
posted Fire Control/Lifesaving Plan

After jacking down your liftboat you have an unexpected list. You find that the only cause of this list must be a flooded leg. The list caused by a flooded leg means your vessel has a(n) _____.
decrease in the GZ (righting arm)

A semisubmersible, while floating level, displaces 18,000 long tons. Bulk, weighing 400 long tons, is placed in P-tanks located 80 feet to starboard of the centerline. What is the new TCG?
1.74 feet starboard of centerline

Which data is NOT used in the Allowable Wind and Wave Charts for the COASTAL DRILLER?
Total weight

The longitudinal distance between draft marks for the DEEP DRILLER is.

164'-00"

The marine riser on the DEEP DRILLER should be disconnected if it appears the mooring line tensions will exceed 522 kips or the ball joint angle will exceed _____.

10°

The DEEP DRILLER is level at a draft of 58 feet when there are no environmental forces. What is the value of LCG?

2.26 feet forward of amidships

What is the length of the catenary when the DEEP DRILLER is anchored in 600 feet of water and the anchor line tension is 170 kips?

1493 feet

See REF292

REF012

What are flammable and combustible liquids? Flammable and combustible liquids are liquids that can burn. They are classified, or grouped, as either flammable or combustible by their flashpoints. Generally speaking, flammable liquids will ignite (catch on fire) and burn easily at normal working temperatures. Combustible liquids have the ability to burn at temperatures that are usually above working temperatures. There are several specific technical criteria and test methods for identifying flammable and combustible liquids. Under the Workplace Hazardous Materials Information System (WHMIS) 1988, flammable liquids have a flashpoint below 37.8°C (100°F). Combustible liquids have a flashpoint at or above 37.8°C (100°F) and below 93.3°C (200°F). Flammable and combustible liquids are present in almost every workplace. Fuels and many common products like solvents, thinners, cleaners, adhesives, paints, waxes and polishes may be flammable or combustible liquids. Everyone who works with these liquids must be aware of their hazards and how to work safely with them. These categories are further subdivided, depending on the liquid's flash point and boiling point.

- Class IA flammable liquids have a flash point below 73 °F (the upper end of the common range of room temperature) and a boiling point below 100 °F
- Class IB flammable liquids have a flash point below 73 °F and a boiling point greater than or equal to 100 °F
- Class IC flammable liquids have a flash point greater than or equal to 73 °F and below 100 °F
- Class II combustible liquids have a flash point greater than or equal to 100 °F and below 140 °F
- Class IIIA combustible liquids have a flash point greater than or equal to 140 °F and below 200 °F
- Class IIIB combustible liquids have a flash point greater than or equal to 200 °F

46 cfr 30.10–22 Flammable liquid—TB/ALL. The term flammable liquid means any liquid which gives off flammable vapors (as determined by flashpoint from an open-cup tester, as used for test of burning oils) at or below a temperature of 80 °F. Flammable liquids are referred to by grades as follows: (a) Grade A. Any flammable liquid having a Reid 1 vapor pressure of 14 pounds or more. (b) Grade B. Any flammable liquid having a Reid 1 vapor pressure under 14 pounds and over 8 1/2 pounds. (c) Grade C. Any flammable liquid having a Reid 1 vapor pressure of 8 1/2 pounds or less and a flashpoint of 80 °F. or below. Flammable range: The limits between the minimum and maximum concentrations of vapor in air that can form an explosive or burnable mixture. Usually these limits are abbreviated LEL (Lower Explosive Limit) and UEL (Upper Explosive Limit). A "combustible liquid" has a flashpoint above 80°F. (Example: Lube Oil) Most petroleum vapors are heavier than air and are toxic. These vapors constitute varying fire and explosion hazards. Splashing or spraying oil into a tank, the movement of water droplets through oil, or moving oil through pipes can electrically charge liquid petroleum products and produce static electricity. This static electricity can trigger an explosion.

Lower flammability limit (LFL): The lowest concentration (percentage) of a gas or a vapor in air capable of producing a flash of fire in the presence of an ignition source (arc, flame, heat). The term is considered by many safety professionals to be the same as the lower explosive level (LEL). At a concentration in air lower than the LFL, gas mixtures are "too lean" to burn. Methane gas has an LFL of 5.0%. If the atmosphere has less than 5.0% methane, an explosion cannot occur even if a source of ignition is present. From the health and safety perspective, the LEL concentration is considered to be Immediately Dangerous to Life or Health (IDLH), where a more stringent exposure limit does not exist for the flammable gas. Percentage reading on combustible air monitors should not be confused with the LFL concentrations. Explosimeters designed and calibrated to a specific gas may show the relative concentration of the atmosphere to the LFL—the LFL being 100%. A 5% displayed LFL reading for methane, for example, would be equivalent to 5% multiplied by 5.0%, or approximately 0.25% methane by volume at 20 degrees C. Control of the explosion hazard is usually achieved by sufficient natural or mechanical ventilation, to limit the concentration of flammable gases or vapors to a maximum level of 25% of their lower explosive or flammable limit. Upper flammability limit (UFL): Highest concentration (percentage) of a gas or a vapor in air capable of producing a flash of fire in the presence of an ignition source (arc, flame, heat). Concentrations higher than UFL or UEL are "too rich" to burn. Operating above the UFL is usually avoided for safety because air leaking in can bring the mixture into combustibility range. The explosive range of any volatile vapor in air is between its lower explosive limit (LEL) and its upper explosive limit (UEL). Below the LEL the volatile vapor's percentage in air is too lean to burn. And above the UEL the volatile vapor's percentage in air is too rich to burn. Combustible gas indicators read as a percent of the LEL. This is known as the sampled level. Formula : Actual Vapor/air mixture = LEL (decimal) * sampled level (decimal) Use a combustible gas indicator to test for the presence of explosive gases. These meters show the percentage (%) of the lower explosive limit (LEL) of a combustible gas in any given space. However, a combustible gas indicator only detects vapor at the point where the sample is taken. It will not work properly in oxygen-deficient atmospheres. Any movement of the needle indicates an unsafe condition. Petroleum vapors are normally heavier than air and settle at the lowest point in a tank or compartment. Be sure to test the atmosphere in those locations. An oxygen Indicator is a device that tests for oxygen content. Prolonged exposure to gases such as CO2 may affect its accuracy. An explosimeter is a gas detector which is used to measure the amount of combustible gases present in a sample. When a percentage of the lower explosive limit (LEL) of an atmosphere is exceeded, an alarm signal on the instrument is activated. " The explosimeter is primarily a combustible gas detector but will also give guidance with regard to safety of a space for entry by personnel. If a space has been ventilated to remove vapors, the remaining concentration can be measured with explosimeter, provided that it is below the lower flammable range. Generally any needle deflection above zero is taken as indicating a toxic condition. Crude oils contain all of the hydrocarbon products extracted in the refinery and many of the products are highly toxic. Benzene (C2H6) is an example and its low threshold limit value (TLV)

of 10 ppm indicates this. Sour Crude oils carry highly toxic hydrogen sulphide (H₂S) with a TLV also of 10 ppm. Petrol (Gasoline) has a TLV of 300 ppm. Entry to the cargo tanks and pump-rooms of a crude oil carrier exposes personnel to these risks. These are additional risks involved in the tank entry, where inert gas has been used. The inert gas adds the risk of Carbon monoxide (CO) which has a TLV of 50 ppm; Nitrogen dioxide (NO₂) with 3 ppm; nitric oxide (NO) with 25 ppm; and sulphur dioxide (SO₂) with 2 ppm. Trace amounts of the hydrocarbon products which are very dangerous, and other toxic gases which may be present, require special means of detection. Threshold limit values are updated annually and given in references available from health and safety authorities. Ambient air typically consists of 78% nitrogen and 21% oxygen. The extra 1% is a combination of carbon, helium, methane, argon and hydrogen. The closer the air is to sea level, the higher the percentage of oxygen. Human activities, particularly the manufacturing processes and the burning of fossil fuels, has directly impacted the ambient air quality due to the high level of industrial and chemical pollutants that have been released into the atmosphere.

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.

Reid vapor pressure (RVP) is a common measure of the volatility of gasoline and other petroleum products. It is defined as the absolute vapor pressure exerted by the vapor of the liquid and any dissolved gases/moisture at 37.8 °C (100 °F) as determined by the test method ASTM-D-323, which was first developed in 1930 and has been revised several times (the latest version is ASTM D323-15a). The test method measures the vapor pressure of gasoline, volatile crude oil, jet fuels, naphtha, and other volatile petroleum products but is not applicable for liquefied petroleum gases. ASTM D323-15a requires that the sample be chilled to 0-1 degrees Celsius and then poured into the apparatus; for any material that solidifies at this temperature, this step cannot be performed. RVP is commonly reported in kilopascals or pounds per square inch and represents volatilization at atmospheric pressure because ASTM-D-323 measures the gauge pressure of the sample in a non-evacuated chamber.

What is an Autoignition Temperature? A material's autoignition or ignition temperature is the temperature at which a material self-ignites without any obvious sources of ignition, such as a spark or flame. Most common flammable and combustible liquids have autoignition temperatures in the range of 300°C (572°F) to 550°C (1022°F). Some have very low autoignition temperatures. For example, ethyl ether has an autoignition temperature of 160°C (356°F) and its vapours have been ignited by hot steam pipes. Serious accidents have resulted when solvent-evaporating ovens were heated to temperatures above the autoignition temperature of the solvents used. Autoignition temperatures, however, are intended as guides, not as fine lines between safe and unsafe. Use all precautions necessary. 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 for 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.

Nonflammable compressed gas: Any material having a vapor pressure exceeding 25 pounds per square inch at a temperature of 70°F. Green label. Examples are oxygen, nitrogen, and helium.

REF015

Ullage or headspace is the unfilled space in a container, particularly with a liquid.[]

REF024

Tonnage is a measure of the size or cargo carrying capacity of a ship. The term derives from the taxation paid on tons or casks of wine, and was later used in reference to the weight of a ship's cargo; however, in modern maritime usage, "tonnage" specifically refers to a calculation of the volume or cargo volume of a ship. Tonnage should not be confused with Displacement which refers to the loaded or empty weight of the vessel itself. Gross tonnage (often abbreviated as GT, G.T. or gt) is a unit less index related to a ship's overall internal volume. Gross tonnage is different from gross register tonnage.[1] Neither gross tonnage nor gross register tonnage is a measure of the ship's displacement (mass) and should not be confused with terms such as deadweight tonnage or displacement. Gross tonnage, along with net tonnage, was defined by The International Convention on Tonnage Measurement of Ships, 1969, adopted by the International Maritime

Organization in 1969, and came into force on July 18, 1982. These two measurements replaced gross register tonnage (GRT) and net register tonnage (NRT). Gross tonnage is calculated based on "the moulded volume of all enclosed spaces of the ship" and is used to determine things such as a ship's manning regulations, safety rules, registration fees, and port dues, whereas the older gross register tonnage is a measure of the volume of certain enclosed spaces. Net tonnage (often abbreviated as NT, N.T. or nt) is a dimensionless index calculated from the total moulded volume of the ship's cargo spaces by using a mathematical formula. Defined in The International Convention on Tonnage Measurement of Ships that was adopted by the International Maritime Organization in 1969, the net tonnage replaced the earlier net register tonnage (NRT) which denoted the volume of the ship's revenue-earning spaces in "register tons", units of volume equal to 100 cubic feet (2.83 m³). [1] Net tonnage is used to calculate the port duties and should not be taken as less than 30 per cent of the ship's gross tonnage. [2] Net tonnage is not a measure of the weight of the ship or its cargo, and should not be confused with terms such as deadweight tonnage or displacement. Also, unlike the net register tonnage, the net tonnage is unit less and thus can not be defined as "tons" or "net tons". Gross register tonnage (GRT, grt, g.r.t.) a ship's total internal volume expressed in "register tons", one of which equals a volume of 100 cubic feet (2.83 m³). It is calculated from the total permanently enclosed capacity of the vessel. The ship's net register tonnage is obtained by reducing the volume of non-revenue-earning spaces i.e. spaces not available for carrying cargo, for example engine rooms, fuel tanks and crew quarters, from its gross register tonnage. [1][2] Gross register tonnage is not a measure of the ship's weight or displacement and should not be confused with terms such as deadweight tonnage or displacement. Gross register tonnage was defined by the Moorsom Commission in 1854. Gross and net register tonnages were replaced by gross tonnage and net tonnage, respectively, when the International Maritime Organization (IMO) adopted The International Convention on Tonnage Measurement of Ships on 23 June 1969. The new tonnage regulations entered into force for all new ships on 18 July 1982, but existing vessels were given a migration period of 12 years to ensure that ships were given reasonable economic safeguards, since port and other dues are charged according to ship's tonnage. Since 18 July 1994 the gross and net tonnages, dimensionless indices calculated from the total moulded volume of the ship and its cargo spaces by mathematical formulae, have been the only official measures of the ship's tonnage. [3] However, the gross and net register tonnages are still widely used in describing older ships. Deadweight tonnage (also known as deadweight abbreviated to DWT, D.W.T., d.w.t., or dwt) is a measure of how much weight a ship is carrying or can safely carry. [1][2][3] It is the sum of the weights of cargo, fuel, fresh water, ballast water, provisions, passengers, and crew. [1] The term is often used to specify a ship's maximum permissible deadweight, the DWT when the ship is fully loaded so that its Plimsoll line is at the point of submersion, although it may also denote the actual DWT of a ship not loaded to capacity. Deadweight tonnage was historically expressed in long tons but is now usually given internationally in tonnes. [4] Deadweight tonnage is not a measure of the ship's displacement and should not be confused with gross tonnage or net tonnage (or their more archaic forms gross register tonnage or net register tonnage). A ship's displacement or displacement tonnage is the weight of the water that a ship displaces when it is floating; the term is defined ordinarily such that the ship's fuel tanks are full and all stores are aboard. The term is applied usually to naval vessels. Displacement is the actual weight of the ship, since a floating body displaces its own weight in water (Archimedes' principle). [1][2] Another way of thinking about displacement is the weight of the water that would spill out of a completely filled container were the ship placed into it. A number of synonymous terms exist for this maximum weight, such as loaded displacement, full load displacement and designated displacement. [3] As a measurement of weight, displacement should not be confused with similarly named measurements of volume or capacity such as net tonnage, gross tonnage, or deadweight tonnage. The density (weight per unit of volume) of water can vary. For example, the average density of seawater at the surface of the ocean is 1025 kg/m³ (10.25 lb/ga, 8.55 lb/US gallon); fresh water on the other hand has a density of about 1000 kg/m³ (10.00 lb/ga, 8.35 lb/US gallon). [3] Consider a 100-ton ship passing from a saltwater sea into a freshwater river. It always displaces exactly 100 tons of water, but it has to displace a greater volume of fresh water to amount to 100 tons. Therefore it would sit slightly lower in the water in the freshwater river than it would in the saltwater sea. It can be useful to know a ship's displacement when it is unloaded or loaded partially. Terms for these measurements include light displacement, standard displacement, and normal displacement. These terms are defined below.

REF025

Hull members that run athwartship (from one side to the other) are called "transverse." Those that run from the bow to the stern are called "longitudinal." A ship's inner bottom forms the tank top in the engine room. The double bottom is the space or tank between the inner bottom and the skin or the hull. Vertical transverse members in the double bottom are called floors. Stringer: A term applied to a fore-and-aft girder running along the side of a ship and also to the outboard strake of plating on any deck. The side pieces of a ladder or staircase into which the treads and risers are fastened. Stringer Plates: A term applied to the outboard plates on any deck, or to the plates attached to the top flanges of a tier of beams at the side of a vessel. Stiffener: An angle bar, T-bar, channel, etc., used to stiffen plating of a bulkhead, etc. A cofferdam is a void space between two tanks that prevents one tank from leaking directly into the other. TUMBLE HOME: The decreasing of a vessel's beam above the waterline as it approaches the rail. Opposite of flare. RUN: The underwater portion of a vessel aft of the midship section or flat of the bottom. That portion of the after hull that tapers to the stern post. MIDDLE BODY: That

portion of the ship adjacent to the midship section. When it has a uniform cross section throughout, its length its waterlines being parallel to the centerline, it is called the parallel middle body. ENTRANCE: The forward underwater portion of a vessel at or near the bow. The angle formed between the center line of the ship and the tangent to the designed waterline is called the angle of entrance. CAMBER, ROUND OF BEAM : The weather decks of ships are rounded up or arched in an athwartship direction for the purpose of draining any water that may fall on them to the sides of the ship where it can be led overboard through scuppers. The arching or rounding up is called the camber or round of the beam and is expressed in inches in connection with the greatest molded breadth of the ship in feet, thus, "the main deck has a camber of 10 inches in 40 feet." It is measured at the center line of the ship at the greatest molded breadth and is the distance from the chord to the top of the arch. DEADRISE : The angle which the straight portion of the bottom of the floor of the midship section makes with the base line. It is expressed by the number of inches rise above the base line in the half-beam of the vessel. SHEER : The longitudinal curve of a vessel's rails, decks, etc. the usual reference being to the ship's side; however, in the case of a deck having a camber, its center line may also have a sheer. The amount by which the height of the weather deck at the after or forward perpendicular exceeds that at its lowest point. FLARE : The spreading out from a central vertical plane of the body of a ship with increasing rapidity as the section rises from the water line to the rail. COUNTER : That part of a ship's stern which overhangs the stern post, usually that part above the water line. FREEING PORTS : Holes in the lower portion of a bulwark, which allow deck wash to drain off into the sea. Some freeing ports have swinging gates which allow water to drain off but which are automatically closed by sea-water pressure.

REF037

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.

REF097

Fires are divided into five different "classes"- A, B, C, D, and LFG. These classes indicate either the type of fuel involved or special dangers. The class also indicates the type of extinguishing agent to use and certain techniques that should or should not be used on that fire. Ordinary combustibles Class A fires consist of ordinary combustibles such as wood, paper, fabric, and most kinds of trash. They may be extinguished by water, wet chemical suppression, or dry powder. Flammable liquid and gas These are fires whose fuel is flammable or combustible liquid or gas. The US system designates all such fires "Class B". These fires follow the same basic fire tetrahedron (heat, fuel, oxygen, chemical reaction) as ordinary combustible fires, except that the fuel in question is a flammable liquid such as gasoline, or gas such as natural gas. A solid stream of water should never be used to extinguish this type because it can cause the fuel to scatter, spreading the flames. The most effective way to extinguish a liquid or gas fueled fire is by inhibiting the chemical chain reaction of the fire, which is done by dry chemical and Halon extinguishing agents, although smothering with CO₂ or, for liquids, foam is also effective. Halon has fallen out of favor in recent times (except for aircraft fire extinguishment systems) because it is an ozone-depleting material; the Montreal Protocol declares that Halon should no longer be used. Chemicals such as FM-200 are now the recommended halogenated suppressant. Electrical Electrical fires are fires involving potentially energized electrical equipment. The US system designates these "Class C". This sort of fire may be caused by short-circuiting machinery or overloaded electrical cables. These fires can be a severe hazard to firefighters using water or other conductive agents, as electricity may be conducted from the fire, through water, to the firefighter's body, and then earth. Electrical shocks have caused many firefighter deaths. Electrical fire may be fought in the same way as an ordinary combustible fire, but water, foam, and other conductive agents are not to be used. While the fire is or possibly could be electrically energized, it can be fought with any extinguishing agent rated for electrical fire. Carbon dioxide CO₂, NOVEC 1230, FM-200 and dry chemical powder extinguishers such as PKP and even baking soda are especially suited to extinguishing this sort of fire. PKP should be a last resort solution to extinguishing the fire due to its corrosive tendencies. Once electricity is shut off to the equipment involved, it will generally become an ordinary combustible fire. Metal Class D fires involve combustible metals - especially alkali metals like lithium and potassium, alkaline earth metals such as magnesium, and group 4 elements such as titanium and zirconium. Metal fires represent a unique hazard because people are often not aware of the characteristics of these fires and are not properly prepared to fight them. Therefore, even a small metal fire can spread and become a larger fire in the surrounding ordinary combustible materials. Certain metals burn in contact with air or water (for example, sodium), which exacerbates this risk. Masses of combustible metals do not usually represent great fire risks because heat is conducted away from hot spots so efficiently that the heat of combustion cannot be maintained. In consequence, significant heat energy is required to ignite a contiguous mass of combustible metal. Generally, metal fires are a hazard when the metal is in the form of sawdust, machine shavings or other metal "fines", which combust more rapidly than larger blocks. Metal fires can be ignited by the same ignition sources that would start other common fires. Care must be taken when extinguishing metal fires. Water and other common firefighting agents can excite metal fires and make them worse. The National Fire Protection Association recommends that metal fires be fought with dry powder extinguishing agents that work by smothering and heat absorption. Different metals require

different agents and for a particular metal agents cannot necessarily be substituted for one another. The most common agents are sodium chloride granules and graphite powder. In recent years, powdered copper has also come into use. These dry powder extinguishers should not be confused with those that contain dry chemical agents. The two are not the same, and only dry powder should be used to extinguish a metal fire. Using a dry chemical extinguisher in error, in place of dry powder, can be ineffective or actually increase the intensity of a metal fire. Cooking oils and fats (kitchen fires) Class K fires involve unsaturated cooking oils in well-insulated cooking appliances located in commercial kitchens. Fires that involve cooking oils or fats are designated "Class K" under the American system. Though such fires are technically a subclass of the flammable liquid/gas class, the special characteristics of these types of fires, namely the higher flash point, are considered important enough to recognize separately. A special class K extinguisher will safely smother the fire by turning the oil into a foam. A water mist can also be used to extinguish such fires. As with Class B fires, a solid stream of water should never be used to extinguish this type because it can cause the fuel to scatter, spreading the flames. Appropriate fire extinguishers may also have hoods over them that help extinguish the fire. Sometimes fire blankets are used to stop a fire in a kitchen or on a stove. Flammable liquids give off flammable vapors at or below a temperature of 80°F. Within this class, there are three grades, based on their Reid Vapor Pressure and flash point. All liquids that burn may be grouped into these five grades. It is apparent that flammable liquids are those that may be ignited at temperatures below 80°F whereas the combustible liquids must be heated to above 80°F before they will flash. Class IA flammable liquids have a flash point below 73 °F (22.8 °C) (the upper end of the common range of room temperature) and a boiling point below 100 °F Class IB flammable liquids have a flash point below 73 °F (22.8 °C) and a boiling point greater than or equal to 100 °F (37.8 °C) Class IC flammable liquids have a flash point greater than or equal to 73 °F (22.8 °C) and below 100 °F (37.8 °C) Class II combustible liquids have a flash point greater than or equal to 100 °F (37.8 °C) and below 140 °F (60 °C) Class IIIA combustible liquids have a flash point greater than or equal to 140 °F (60 °C) and below 200 °F (93.3 °C) Class IIIB combustible liquids have a flash point greater than or equal to 200 °F (93.3 °C) Grade A refers to a flammable liquid with Reid vapor pressure of 14 pounds per square inch absolute (psia) or more. Think of a Grade A cargo as a very volatile liquid that gives off lots of vapor even at relatively low temperatures...so much vapor, in fact, that the vapor can build up considerable measurable pressure inside a closed test container. Grade B refers to a flammable liquid with a Reid vapor pressure of more than 814 pounds (psia) but less than 14 pounds Grade C refers to a flammable liquid with a Reid vapor pressure of 814 pounds (psia) or less and a flash point of 80°F or below. Gasoline with a Reid vapor pressure of 7.4 pounds (psia) and a flash point of -40°F is an example of a grade C cargo. Since gasoline's primary hazard is its flammability it is a Subchapter D cargo rather than a Subchapter O cargo where properties other than or in addition to flammability are regulated. Grade D refers to a combustible liquid with a flash point above 80°F, but below 150°F. One example is Diesel oil that is either a Grade D or a Grade E liquid depending upon its flash point, which can vary between 110°F and 190°F. Grade E refers to a combustible liquid with a flash point of 150°F or above. "Bunker C," or heavy industrial fuel oil, is an example of a Grade E liquid. Liquefied flammable gas (LFG): Any flammable gas with a Reid Vapor Pressure (RVP) above 40 pounds and that has been changed from a gas to a liquid state. 46 CFR 30.10-39. Liquefied natural gas (LNG): C■ and C■ hydrocarbons that can be liquefied either by refrigeration or by pressurization at ambient temperatures. Reid Vapor Pressure is the pressure exerted by the vapor of a liquid as determined by laboratory tests in a Reid Apparatus at a standard temperature of 100°F, expressed in pounds per square inch (absolute) (psia) according to standards established by the American Society for Testing Materials (ASTM). It is now government policy to accept meaningful civilian standards, such as this ASTM standard, wherever possible rather than to develop and enforce separate government standards.

REF130
 46 CFR 108.417(b)

REF137
 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.

REF1595
 46 CFR 109

REF163
 Plugging a tank vent with a wooden plug may prevent the tank from filling completely.

REF164

Flooding boundaries are the bulkheads and decks restricting the partially flooded area from the flooding boundary. If partially flooded compartments become completely flooded, the flooding boundaries may not hold. There may be hidden cracks or leaky stuffing tubes or the bulkheads may not be able to withstand the pressure put on them. In other words, just because a flooding boundary seems safe one minute is no sign that it will be safe the next. Therefore, repair party personnel should keep on reinspecting and should make sure the boundaries hold (even so far as to add shoring if bulkhead or overhead strength is in question.)

REF166

An "accumulator" contains hydraulic oil under pressure and is ready to do "work". An accumulator is an "unfired pressure vessel" (i.e., one that does not use an outside source of heat) in which energy is stored at high pressure in the form of a gas or a gas and hydraulic fluid. An example of an accumulator would be a tank that stores hydraulic fluid under pressure that, when released, can be used to start a lifeboat engine. Such an accumulator can be designed to recharge itself as the engine runs (assuming that the engine will run) or can be recharged manually by using a hand pump.

REF170

A plate installed in a storage tank, at a point directly beneath the drop tube or gauging port. The purpose of the plate is to absorb the impact of repeated insertions of gauge sticks, and to help dissipate the impact of product being dropped into the tank.

REF175

Carbon monoxide is extremely dangerous. It is found in engine exhaust where incomplete combustion takes place. It also exists in closed spaces after a fire.

REF177

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.

REF180

If you see a man fall overboard shout "man overboard" in a loud voice: quickly pass the word to the bridge. Throw the man overboard a ring life buoy as a data marker. Quick turn: The quick turn is the traditional response to a man overboard emergency on a sailboat. Despite many new approaches, it is still a robust strategy and often the best method. Certainly when the crew is shorthanded, or when the vessel is in heavy weather, the quick turn method has a lot of merit because it avoids a jibe. The quick turn is essentially a figure eight. On a sailboat it consists of the following steps:

Change course to a beam reach and hold for 15 seconds

Head into the wind and tack, leave the jib fluttering

Veer off until the boat is at a broad reach

Turn upwind until the vessel is pointing at the victim; at this point the vessel should be

Slacken the mainsail until the vessel comes to a stop with the victim in the lee side of

Anderson turn: The Anderson turn is a maneuver used to bring a ship or boat back to a point it previously passed through, often for the purpose of recovering a man overboard, an emergency situation in almost all circumstances. The Anderson turn is most appropriate when the point to be reached remains clearly visible. For other situations, a Scharnow turn or a Williamson turn might be more appropriate. Both will require more time before returning to the point in question.

If the turn is in response to a man overboard, stop the engines.

Put the rudder over full. If in response to a man overboard, put the rudder toward the person.

When clear of the person, go all ahead full, still using full rudder.

After deviating from the original course by about 240 degrees (about 2/3 of a complete circle)

Stop the engines when the target point is 15 degrees off the bow. Ease the rudder and back

If dealing with a man overboard, always bring the vessel upwind of the person. Stop the vessel in the water with the person well forward of the propellers. Williamson turn: The Williamson turn is a maneuver used to bring a ship or boat under power back to a point it previously passed through, often for the purpose of recovering a man overboard. It was named for John Williamson, USNR, who used it in 1943 to pick up Tim Williamson (USMMA 2002) who had fallen overboard.

However, according to Uncommon Carriers by John McPhee, the maneuver was originally called the Butakov pipe and was used in the Russo-Japanese War as a way of keeping guns at the same distance from an enemy. The Williamson turn is most appropriate at night or in reduced visibility, or if the point can be allowed to go (or already has gone) out of sight, but is still relatively near. For other situations, an Anderson turn (quickest method) or a Scharnow turn might be more appropriate. The choice will in large part depend on prevailing wind and weather conditions. It was also used by U.S. Navy nuclear submarines to clear their sonar dead zones.

Put the rudder over full.

If in response to a man overboard, put the rudder toward the person (e.g., if the person is

After deviating from the original course by about 60 degrees, shift the rudder full to the

When heading about 20 degrees short of the reciprocal, put the rudder amidships so that the

Bring the vessel upwind of the person, stop the vessel in the water with the person along

If dealing with a man overboard, always bring the vessel upwind of the person. Stop the vessel in the water with the person

well forward of the propellers. Scharnow turn: The Scharnow turn is a maneuver used to bring a ship or boat back to a

point it previously passed through, often for the purpose of recovering a man overboard. It was developed by and named

for Ulrich Scharnow. The Scharnow turn is most appropriate when the point to be reached is significantly further astern

than the vessel's turning radius. For other situations, an Anderson turn or a Williamson turn might be more appropriate.

Put the rudder over hard. If in response to a man overboard, put the rudder toward the person

After deviating from the original course by about 240 degrees, shift the rudder hard to the

When heading about 20 degrees short of the reciprocal course, put the rudder amidships so

If dealing with a man overboard, always bring the vessel upwind of the person. Stop the vessel in the water with the person

well forward of the propellers.

REF1806

A sheave or pulley wheel is a grooved wheel often used for holding a belt, wire rope, or rope and incorporated into a pulley. The sheave spins on an axle or bearing inside the frame of the pulley. This allows the wire or rope to move freely, minimizing friction and wear on the cable. Sheaves can be used to redirect a cable or rope, lift loads, and transmit power. The words sheave and pulley are sometimes used interchangeably.

REF1807

Hydrogen sulfide (H₂S) is a gas that causes dizziness, asphyxiation (i.e., suffocation), and death. H₂S can paralyze your breathing system. It smells like rotten eggs but very quickly deadens your sense of smell. It is often produced by spilled sewage and is often found in crude petroleum (i.e., "sour" crude). Sewage produces deadly gases, such as hydrogen sulfide and methane. When sewage decomposes it also removes oxygen from the air.

REF1808

Threshold Limit Values (TLVs®) refer to airborne concentrations of chemical substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed, day after day, over a working lifetime, without adverse effects.

REF1809

By composition, dry air contains approximately 78.09% nitrogen, 20.95% oxygen, 0.93% argon, 0.04% carbon dioxide, and small amounts of other gases. Oxygen is approximated to be 21% because its actual value leans closer to 21%.

REF181

We used to learn the "firefighting triangle" - fuel, oxygen, and heat. The modern firefighting theory now uses the "fire tetrahedron" by adding "chain reaction" to the original triangle. You must remove any one of the four factors to extinguish the fire.

REF1810

"Acceptable ceiling concentrations. An employee's exposure to a substance listed in Table Z-2 shall not exceed at any time during an 8-hour shift the acceptable ceiling concentration limit given for the substance in the table, except for a time period, and up to a concentration not exceeding the maximum duration and concentration allowed in the column under "acceptable maximum peak above the acceptable ceiling concentration for an 8-hour shift."

REF1811

Correct answer. "Among the conditions which may compromise a person's tolerance to H₂S are any pulmonary, respiratory, bronchial, or heart problems. Other medical considerations include an eye infection, diabetes, epilepsy, hypertension, and alcoholism (or persons who have consumed alcohol within 24 hours of exposure)."

REF1812

46 CFR 107.235(B)(1)

REF1813

46 CFR 108

REF1814
46 CFR 108.103

REF1815
46 CFR 108.423(d) 46 cfr part 95 fire protection equipment.pdf.10-10(g)

REF1816
46 CFR 108.497

REF1817
46 CFR 108.635

REF1818
46 CFR 108.699

REF1819
46 CFR 108.901, 46 CFR 109 (b) (2)

REF1820
46 CFR 109.213(f)(2)(i)

REF1821
46 CFR 109.337(b)

REF1823
46 CFR Table 107.235

REF1824
SDC 46 CFR 108.181(c)

REF1825
46 CFR 108.637(a)

REF1826
§ 109.503 Emergency signals. (1) The signal to man emergency stations is a rapid succession of short soundings of both the general alarm bell and the whistle, if a whistle is installed, for a period of not less than 10 seconds.

REF1827
33 CFR 151.19(a)

REF1828
33 CFR 151.19(c)

REF1830
46 CFR 108.901(b)(2)

REF1831
46 CFR 109.203(b)

REF1832
46 CFR 109.211(a)(2)

REF1833
46 CFR 109.213(c)(2)

REF1834
46 CFR 109.213(f)(2)(v)

REF1835
46 CFR 109.223

REF1836
46 CFR 109.301(e)

REF1837
46 CFR 109.323(c)

REF1838
46 CFR 109.323(c)(2)

REF1839
46 CFR 109.331(E)

REF1840
46 CFR 109.339 46 CFR 108.633

REF1841
46 CFR 109.414(a)

REF1842
46 CFR 109.415(a)

REF1843
46 CFR 109.433(b)

REF1844
46 CFR 109.435(a)

REF1846
46 CFR 108.170(a)

REF1847
46 CFR 108.417(a)

REF1848
46 CFR 108.417(a) 46 cfr part 95 fire protection equipment.pdf.10-5(d)

REF1849
46 CFR 108.417(b) 46 cfr part 95 fire protection equipment.pdf.10-5(e)

REF185

In the US, there is a precise definition of flammable liquid as one with a flashpoint below 100 degrees Fahrenheit (38 degrees Celsius). Less-flammable liquids (with a flashpoint between 100 degrees and 200 degrees Fahrenheit) are defined as combustible liquids. This definition is used by the National Fire Protection Association, The US Department of Transportation, the US Environmental Protection Agency, the US Occupational Safety and Health Administration and others. These categories are further subdivided, depending on the liquid's flash point and boiling point. •Class IA flammable liquids have a flash point below 73 °F (the upper end of the common range of room temperature) and a boiling point below 100 °F •Class IB flammable liquids have a flash point below 73 °F and a boiling point greater than or equal to 100 °F •Class IC flammable liquids have a flash point greater than or equal to 73 °F and below 100 °F •Class II combustible liquids have a flash point greater than or equal to 100 °F and below 140 °F •Class IIIA combustible liquids have a flash point greater than or equal to 140 °F and below 200 °F •Class IIIB combustible liquids have a flash point greater than or equal to 200 °F Flammable range: The limits between the minimum and maximum concentrations of vapor in air that can form an explosive or burnable mixture. Usually these limits are abbreviated LEL (Lower Explosive Limit) and UEL (Upper Explosive Limit). The flash point is the lowest temperature a flammable liquid can form an ignitable mixture and burn when ignited by an eternal source. The rate of vaporization at the flash point is usually insufficient to maintain

continuous burning. If the flammable liquid is heated to a much higher temperature, the vapors produce at the liquid's surface will continue to ignite without needing the application of an eternal source of ignition. The temperature at which the vapors self-ignite is referred to as the ignition temperature, and it is higher than the flash point temperature. A "combustible liquid" has a flashpoint above 80°F. (Example: Lube Oil) Most petroleum vapors are heavier than air and are toxic. These vapors constitute varying fire and explosion hazards. Splashing or spraying oil into a tank, the movement of water droplets through oil, or moving oil through pipes can electrically charge liquid petroleum products and produce static electricity. This static electricity can trigger an explosion. Lower flammability limit (LFL): The lowest concentration (percentage) of a gas or a vapor in air capable of producing a flash of fire in the presence of an ignition source (arc, flame, heat). The term is considered by many safety professionals to be the same as the lower explosive level (LEL). At a concentration in air lower than the LFL, gas mixtures are "too lean" to burn. Methane gas has an LFL of 5.0%. If the atmosphere has less than 5.0% methane, an explosion cannot occur even if a source of ignition is present. From the health and safety perspective, the LEL concentration is considered to be Immediately Dangerous to Life or Health (IDLH), where a more stringent exposure limit does not exist for the flammable gas.[1] Percentage reading on combustible air monitors should not be confused with the LFL concentrations. Explosimeters designed and calibrated to a specific gas may show the relative concentration of the atmosphere to the LFL—the LFL being 100%. A 5% displayed LFL reading for methane, for example, would be equivalent to 5% multiplied by 5.0%, or approximately 0.25% methane by volume at 20 degrees C. Control of the explosion hazard is usually achieved by sufficient natural or mechanical ventilation, to limit the concentration of flammable gases or vapors to a maximum level of 25% of their lower explosive or flammable limit. Upper flammability limit (UFL): Highest concentration (percentage) of a gas or a vapor in air capable of producing a flash of fire in the presence of an ignition source (arc, flame, heat). Concentrations higher than UFL or UEL are "too rich" to burn. Operating above the UFL is usually avoided for safety because air leaking in can bring the mixture into combustibility range. The explosive range of any volatile vapor in air is between its lower explosive limit (LEL) and its upper explosive limit (UEL). Below the LEL the volatile vapor's percentage in air is too lean to burn. And above the UEL the volatile vapor's percentage in air is too rich to burn. Combustible gas indicators read as a percent of the LEL. This is known as the sampled level. Formula : Actual Vapor/air mixture = LEL (decimal) * sampled level (decimal) Use a combustible gas indicator to test for the presence of explosive gases. These meters show the percentage (%) of the lower explosive limit (LEL) of a combustible gas in any given space. However, a combustible gas indicator only detects vapor at the point where the sample is taken. It will not work properly in oxygen-deficient atmospheres. Any movement of the needle indicates an unsafe condition. Petroleum vapors are normally heavier than air and settle at the lowest point in a tank or compartment. Be sure to test the atmosphere in those locations.

REF1850
 46 CFR 108.417(c)

REF1851
 46 CFR 108.425(b)(1)

REF1852
 46 CFR 108.445(a) 46 cfr part 95 fire protection equipment.pdf.15-30(a)

REF1853
 46 CFR 108.495(a)

REF1854
 46 CFR 108.495(b)

REF1855
 46 CFR 108.499

REF1856
 46 CFR 108.580(a)

REF1857
 46 CFR 108.580(a)(2)(i)

REF1858
 46 CFR 108.580(a)(2)(ii)

REF1859
46 CFR 108.597(A) 46 CFR 160.031

REF1860
46 CFR 108.631(b)

REF1861
46 CFR 108.703(a)

REF1862
46 CFR 108.703(b)

REF1863
46 CFR 108.709

REF1864
46 CFR 108.901(b)(6)

REF1865
46 CFR 108Table 495(b)

REF1867
46 CFR Table 108.495(a)

REF1868
46 CFR Table 108.495(b)

REF1869
46 CFR TABLE 108.495(b)

REF1870
108.239 Fuel transfer equipment

REF1871
46 CFR 107

REF1872
46 CFR 107.111

REF1873
46 CFR 107.211(d)

REF1874
46 CFR 107.235(B)(2)(iii)

REF1875
46 CFR 107.257

REF1876
46 CFR 107.305(hh)

REF1877
46 CFR 107.305(hh)(3)

REF1878
46 CFR Table 91.25-20(A)(1): Note: If the stamped full weight of a 100-lb. CO2 cylinder is 314 lbs., 314 lbs. represents the gross weight of the cylinder (cylinder plus contents). 100 lbs. represents the net weight (contents), and the difference is the tare weight (empty cylinder), which in this case is 214 lbs. The CO2 cylinder is required to be recharged when inspection

reveals that 10 percent of the charge weight has been lost. 10 percent of 100 lbs. is 10 lbs. 314 lbs. minus 10 lbs. equals 304 lbs. Therefore, 304 lbs. is the minimum weight of the cylinder before it must be recharged. 282 lbs. Incorrect answer.: 282 lbs. minus 214 lbs. equals 68 lbs., which means 32 percent of the original 100-lb. charge weight has been lost. 294 lbs. Incorrect answer. : 294 lbs. minus 214 lbs. equals 80 lbs., which means 20 percent of the original 100-lb. charge weight has been lost. 300 lbs. Incorrect answer. : 300 lbs. minus 214 lbs. equals 86 lbs., which means 14 percent of the original 100-lb. charge weight has been lost. 304 lbs. Correct answer. : 304 lbs. minus 214 lbs. equals 90 lbs., which means 10 percent of the original 100-lb. charge weight has been lost. This represents the minimum total (gross) weight of the cylinder before recharging is required.

REF1879

Stringer: A term applied to a fore-and-aft girder running along the side of a ship and also to the outboard strake of plating on any deck. The side pieces of a ladder or staircase into which the treads and risers are fastened. Stringer Plates: A term applied to the outboard plates on any deck, or to the plates attached to the top flanges of a tier of beams at the side of a vessel.

REF1880

46 CFR 4.05-1(a)(2)

REF1881

46 CFR 108.580(C)(1)

REF1882

46 CFR 108.697(a)

REF1883

46 CFR 109.213(d)(3)

REF1884

46 CFR 109.213(g)

REF1885

46 CFR 109.301(e)(2)

REF1886

46 CFR 109.301(f)(1)

REF1887

46 CFR 160.035

REF1888

46 CFR 109.334

REF1889

46 CFR 107.231(h)

REF189

The first step in fighting a Class C fire is to secure (i.e., turn off) electrical power to the equipment or circuits on fire. Class C fires are those in or around electrical equipment, gear, or wiring. The reason these fires are placed in a separate class is because they add the danger of electrical shock to persons in the area. Water-based agents cannot be used on this type of fire because water conducts electrical current. However, low velocity fog can be used .

REF1890

46 CFR 108.403

REF1891

46 CFR 108.445(a)

REF1892

46 CFR 108.496

REF1893

46 CFR TABLE 108.495(B)

REF1894

46 CFR 108.487(a)

REF1895

46 CFR 108.629

REF1896

46 CFR 108.425(d)(1)

REF1897

46 CFR 109.333

REF1898

46 CFR 108.639

REF1899

46 CFR 109.213(f)(2)(ii)

REF1900

46 CFR 109.213(h)

REF1901

46 CFR 109.337(a)

REF1902

46 CFR 109.337(c); 46 CFR 108.703

REF1903

46 CFR 109.433(c)

REF1904

46 CFR 4

REF1905

46 CFR 4.05-1(a)(5)

REF1906

46 CFR 4.05-1(a)(7) 46 CFR 109.411

REF1907

We used to learn the "firefighting triangle" - fuel, oxygen, and heat. The modern firefighting theory now uses the "fuel tetrahedron" by adding "chain reaction" to the original triangle. You must remove any one of the four factors to extinguish the fire.

REF1908

Rusting, drying paint, decomposition of organic matter, and cargo residue can cause a deficiency (i.e., shortage) of oxygen by removing it from the air in the space through a process called "oxidation." When you open a sealed tank a vacuum may indicate a lack of oxygen in that space. Always ventilate all rusted or freshly painted areas before entering them .

REF1909

These symptoms should serve as signals to evacuate a potentially dangerous area: Irritation of eyes, nose, or throat; smelling an unusual odor; experiencing an abnormal body sensation.

REF1910

Before entering without a breathing apparatus, test all normally closed compartments for all of the following: 1. Oxygen . 2. Flammable/explosive fumes, and 3. Toxic (deadly) fumes . Air in the atmosphere contains 20.8% oxygen. Do not enter a tank without a breathing apparatus if the oxygen content is less than 19.5% by volume. Ventilate cargo tanks with fresh air, and test them with an oxygen indicator before entering.

REF1911

Never enter a pumphouse unless the forced ventilation system is operating .

REF1912

Spontaneous combustion can occur when a substance with a relatively low ignition temperature (hay, straw, peat, etc.) begins to release heat. This may occur in several ways, either by oxidation in the presence of moisture and air, or bacterial fermentation, which generates heat. The heat is unable to escape (hay, straw, peat, etc. are good thermal insulators), and the temperature of the material rises. The temperature of the material rises above its ignition point (even though much of the bacteria are destroyed by ignition temperatures). Combustion begins if sufficient oxidizer, such as oxygen, and fuel are present to maintain the reaction into thermal runaway.

REF1913

46 CFR 108.461

REF1914

33 CFR 151.73

REF1915

46 CFR 108.143(g)(1)

REF1916

46 CFR 108.185(d)

REF1917

46 CFR 4.05-20

REF1918

46 CFR 109.213(g)(6)(vi)(A)

REF1919

46 CFR 107.305(hh)(2)

REF192

46 CFR 92.07

REF1920

LONGITUDINALS A term applied to the fore-and-aft girders in the bottom of a ship. These girders are usually made up from plates and shapes and are sometimes intercostal and sometimes continuous.

REF1921

Choose the best answer to the following Multiple Choice Questions. Each question is completely independent of any other question on this exam. The following information is applicable to all questions. The following questions should be answered using chart 13205 TR, Block Island Sound, and the supporting publications. "Per standard magnetic compass" is abbreviated "psc" "Per gyrocompass" is abbreviated "pgc" Variation is 15°W DEVIATION TABLE

Magnetic Heading	Deviation
000°	2.0°E
030°	3.0°E
060°	4.0°E
090°	2.0°E
120°	1.0°E

150°	1.0°W
180°	2.0°W
210°	3.5°W
240°	3.0°W
270°	1.5°W
300°	0.0°
330°	1.5°E

REF1922

Weight = 2000 ft³ * 64 lbs./ft³ / 1000 lbs./kip Weight = 128 kips Reference Material for this question courtesy of the FAME Foundation, Inc. Mass. Maritime Academy.

REF196

Heat is transferred in three (3) ways: 1. Conduction through solids structural members such as decks and bulkheads that should be cooled to control the fire. 2. Convection through fluids such as liquids and gases. Since hot air rises, this hot air moves through a vessel's ventilation system and stair towers. Stop the ventilation and close doors and dampers to prevent spreading the fire. Fusible links automatically melt and close some fire dampers. 3. Radiation, similar to the sun's ability to heat the earth through 93,000,000 miles of empty space.

REF198

The Station Bill 46 CFR 199.80 46 CFR 108.901 The Station Bill (now called a Muster List) lists your emergency station and also which lifeboat or life raft you are assigned to. You are required to read the Muster List as soon as you report aboard ship. The signal for "boat stations" (i.e., preparing to launch lifeboats and inflatable life rafts to abandon ship) is more than six short blasts and one long blast on the whistle followed by the same signal on the general alarm bells. When you hear this signal, go to your assigned station. A continuous blast of the whistle for at least 10 seconds and the same signal on the General Alarm bells is the fire and emergency signal. When you hear this signal, go to your fire station. If you are on watch in the engine room, start the fire pump and supply water under pressure to the fire main. During drills, one short blast of the whistle signals the crew to lower the boats. Two short blasts means to stop lowering the boats. Three short blasts is the signal to dismiss the crew from the drill. Additional emergency signals are assigned by the Master. Emergency duties must be comparable to regular duties.

REF202

Spontaneous combustion or spontaneous ignition is a type of combustion which occurs by self-heating (increase in temperature due to exothermic internal reactions), followed by thermal runaway (self heating which rapidly accelerates to high temperatures) and finally, autoignition. Spontaneous combustion can occur when a substance with a relatively low ignition temperature (hay, straw, peat, etc.) begins to release heat. This may occur in several ways, either by oxidation in the presence of moisture and air, or bacterial fermentation, which generates heat. The heat is unable to escape (hay, straw, peat, etc. are good thermal insulators), and the temperature of the material rises. The temperature of the material rises above its ignition point (even though much of the bacteria are destroyed by ignition temperatures). Combustion begins if sufficient oxidizer, such as oxygen, and fuel are present to maintain the reaction into thermal runaway.

REF215

46 CFR 108.455(a) 46 cfr part 95 fire protection equipment.pdf.15-35(a)

REF224

Use a combustible gas indicator to test for the presence of explosive gases. These meters show the percentage (%) of the lower explosive limit (LEL) of a combustible gas in any given space. However, a combustible gas indicator only detects vapor at the point where the sample is taken. It will not work properly in oxygen-deficient atmospheres. Any movement of the needle indicates an unsafe condition. Petroleum vapors are normally heavier than air and settle at the lowest point in a tank or compartment. Be sure to test the atmosphere in those locations. An oxygen indicator is a device that tests for oxygen content. Prolonged exposure to gases such as CO₂ may affect its accuracy.

REF243

If you have to abandon ship, jump feet first from the windward side. Remain in the area where the vessel sank.

REF247

46 CFR 160.021-5(b)

REF269

46 CFR 108.580(C)(1), 46 CFR 133.80, 46 CFR 199

REF278

Right-hand propellers turn clockwise when going ahead, when viewed from the stern. A solid propeller has its blades cast integral with its hub.

REF286

§ 108.550 Survival craft launching and recovery arrangements: General.

REF291

A ship at sea moves in six degrees of motion: heave, sway, surge, roll, pitch and yaw. The first three are linear motions. Heaving is the linear motion along the vertical Z-axis, swaying is the motion along the transverse Y-axis, and surging is the motion along the longitudinal X-axis. Rolling is a rotation around a longitudinal axis, pitching is a rotation around the transverse axis and yawing is a rotation around the vertical axis. HEAVE: The alternate rising and falling of a vessel in a seaway. SWAY: A vessel's motion from side to side. SURGE: A vessel's transient motion along her fore and aft axis. ROLL : Motion of the ship from side to side, alternately raising and lowering each side of the deck. The oscillating motion of a vessel from side to side due to ground swell, heavy sea, or other causes. PITCHING: The alternate rising and falling motion of a vessel's bow in a nearly vertical plane as she meets the crests and troughs of the waves. YAWING: To turn from side to side on an uneven course.

REF292

A catenary is the curve or dip in a line caused either by the line's own weight or by weight attached to the line. If a towline is stretched taut between two vessels any shock loading is transmitted directly through to both vessels.

REF306

46 CFR 108.553(j)

REF307

46 CFR 109.301(f)(4)

REF334

33 CFR 156.125


REF455

Stiffener: An angle bar, T-bar, channel, etc., used to stiffen plating of a bulkhead, etc.

REF468

In the United States, a kip is a non-SI unit of force that equals 1,000 pounds-force, used primarily by architects and engineers to measure engineering loads. It is equivalent to one half of a U.S. ton. Although uncommon, it is occasionally also considered a unit of mass, equal to 1,000 pounds, i.e. one half of a U.S. ton. One use is as a unit of deadweight to compute shipping charges. 1 kip = 4448.222 newtons = 4.448222 kilonewtons (kN) The name comes from combining the words "kilo" and "pound"; it is occasionally called a kilopound. Its symbol is kip, or less frequently, klb. When it is necessary to clearly distinguish it as a unit of force rather than mass, it is sometimes called the kip-force (symbol kipf or klbf). Note that the symbol kp usually stands for a different unit of force, the kilopond or kilogram-force.

REF482

Tare weight /, sometimes called unladen weight, is the weight of an empty vehicle or container. By subtracting it from the gross weight (laden weight), the weight of the goods carried (the net weight) may be determined.

REF487

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.

REF488

46 CFR 42.07-45(d)(1)

REF491
46 CFR 42

REF519
PETEX V 46 CFR 107.231

REF530
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]

REF559
Synchronous rolling is caused by the ship's rolling period becoming synchronous or resonant with the wave period. When this occurs, the ship heels over and, in exceptional circumstances, is rolled further over by the action of the wave. ... It causes a twisting along the ship, leading to extra rolling motions

REF764
Metacenter: The highest point to which G may rise and still permit the vessel to have positive stability. Found at the intersection of the line of action of B when the ship is erect with the line of action of B when the ship is given a small inclination. 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.

REF776
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.

REF778

When the object is lifted, the center of gravity of the object shifts to the head of the boom, causing a rise in the center of gravity and loss of stability.

REF784

The life raft on board ship are released or launched in to the water by three different methods: 1) Auto release with Hydrostatic Release Unit (HRU). 2) Manually launching. 3) Launching by Davits. Auto Release with Hydrostatic Release Unit (HRU): The life raft HRU plays an important role when it comes to saving life during abandon ship situation. SOLAS 74 clearly specify the requirements for construction and positioning of the HRU at the life raft. The Working of HRU: ■HRU acts as a connecting media between life raft container and ship deck, where it is stored. ■The HRU comes in action under the pressure of water exerted on HRU when the ship sinks below 4m of water level. ■The HRU consists of a sharp knife or chisel which is used to cut the strap lashed over the container carrying life raft, but it still holds the painter at the weak link. ■The HRU is connected to the container through a lashing arrangement which can be disengaged quickly by means of slip hook when launching the raft manually. ■The HRU is connected to a strong point on deck through a weak link. ■When vessel sinks, the HRU cuts the rope and the container floats to the surface of water. ■As vessel sinks further, the tension in the painter causes the life raft to inflate out of the container. ■The tension acting on the weak link will cause it to break making the life raft free from the ship. ■When vessel sinks, the HRU cuts the rope and the container floats to the surface of water. Manual Launching Procedure of Life raft: ■Check that one end of the painter of the raft is well secured to a strong point on ship's deck or structure. ■Remove the lashing from the container of the raft and open the way to portable rail if available. ■Check the ship side where the raft to be launched is clear. ■Two people should lift the container from both sides horizontally and throw the container. ■Make sure the painter is still fixed at a strong point so that the raft should not be waved away by waters. ■Pull the painter with a hard jerk to fire the gas bottle to inflate the raft. ■The life raft will take 20-30 sec to inflate. ■Board the life raft one by one using ladder or rope. ■Avoid sharp objects like knives, shoes and other sharp objects etc which may damage the raft surface. ■When everybody is aboard, after a headcount, cut the painter with a sharp knife. Launching Raft by Davit: ■Open the lashing and remove the raft container from HRU by opening the manual slip hook or bottle screw arrangement. ■Tie up the one end of the painter of raft into a strong point at deck. ■Keep the container in the open and attach the davit hook to the given eye in the canister/ container ■Take up the raft load by davit and keep the container hanging at embarkation deck area. ■Pull the painter and inflate the raft. Have a thorough check on the inflated raft. ■Start boarding the raft without the shoes and other sharp object. ■After the boarding is completed, check the bottom is clear and release the securing lines, if any. ■Someone inside the raft will detach the hook of the davit from the raft when the raft is just above the water. ■The davit operating person will board the raft either by jumping in to the sea, raft or by other boarding means if provided. ■Cut the painter and cast away the raft from ship.

REF786

Hydrostatic Release Unit (H.R.U.) is designed for E.P.I.R.B's and Liferrafts. The H.R.U. is a mechanical device that will operate automatically when immersed to a certain depth in water, to release a liferaft, or any other device requiring liberation under these conditions. The H.R.U is installed as part of the liferaft stowage lashing system, (on the INBOARD SIDE of the liferaft), being fitted between a deck plate, or liferaft cradle, and the lashing. The liferaft painter is secured to a WEAK LINK (breaking strength 2.2 +/- 0.4 kN) and this in turn is fitted at the deck attachment of the H.R.U. Liferrafts that have not been launched in the usual manner are taken down with the sinking vessel. At a depth of between 1.5 to 4 meters (or 5 to 12 feet), the water pressure is sufficient to depress an internal diaphragm in the HRU and operate the release mechanism. Once released, the liferaft container will then float free of the sinking vessel and rise towards the surface, with the painter line paying out as the vessel continues to sink. When all the free length of the painter line is paid out, the inflation mechanism of the liferaft is activated, the liferaft inflates, bursting open the container, and continues to

rise to the surface. At this point of inflation, the WEAK LINK parts and allows the liferaft to continue to float to the surface ready for boarding by survivors.

REF787

46 cfr 80.314 Distress communications. (a) The international radiotelephone distress signal consists of the word MAYDAY, pronounced as the French expression "m'aider". (b) These distress signals indicate that a mobile station is threatened by grave and imminent danger and requests immediate assistance. (c) The radiotelephone distress call consists of: (1) The distress signal MAYDAY spoken three times; (2) The words THIS IS; (3) The call sign (or name, if no call sign assigned) of the mobile station in distress, spoken three times; (4) Particulars of the station's position; (5) The nature of the distress; (6) The kind of assistance desired; and (7) Any other information which might facilitate rescue, for example, the length, color, and type of vessel, or number of persons on board. (d) The procedures for canceling false distress alerts are contained in §80.335

REF796

Bollard pull

REF800

GROUND TACKLE COLOR MARKINGS Note: 1 fathom = 6 feet. There are 15 fathoms (90 feet) in a shot of anchor chain. The tools that are required for color marking an anchor chain are a wire brush, paint brush, rags, and paint (red, white, blue, and yellow enamel paint). • 15 fathoms (1 shot). The detachable link is painted red, and one link on each side is painted white. • 30 fathoms (2 shots). The detachable link is painted white, and two links on each side are painted white. • 45 fathoms (3 shots). The detachable link is painted blue, and three links on each side are painted white. • 60 fathoms (4 shots). The detachable link is painted red, and four links on each side are painted white. • 75 fathoms (5 shots). The detachable link is painted white, and five links on each side are painted white. Paint each link in the net to last shot yellow. The yellow alerts you that you are running out of chain. Paint each link in the last shot red. This method is used through the entire marking procedure alternating red, white, and blue for detachable links as appropriate. WIRE MARKINGS In addition to color markings, wire markings may also be used. The purpose of the wire marking is to let you count the shots by feel during blackout conditions or if the markings on the chain are worn off or rusted over. • 1st shot. One turn of wire on the first stud from each side of the detachable link. • 2d shot. Two turns of wire on the second stud from each side of the detachable link. • 3d shot. Three turns of wire on the third stud from each side of the detachable link. • 4th shot. Four turns of wire on the fourth stud on each side of the detachable link. • 5th shot. Five turns of wire on the fifth stud on each side of the detachable link. • 6th shot. Six turns of wire on the sixth stud on each side of the detachable link.

REF969

An anemometer is a device for measuring wind speed, and is a common weather station instrument. The term is derived from the Greek word anemos, meaning wind, and is used to describe any airspeed measurement instrument used in meteorology or aerodynamics. The first known description of an anemometer was given by Leon Battista Alberti around 1450. Anemometers can be divided into two classes: those that measure the wind's speed, and those that measure the wind's pressure; but as there is a close connection between the pressure and the speed, an anemometer designed for one will give information about both.