
Q623 - Engineering Safety & Environmental Protection

1. Static water pressure on the hull of a ship is greatest at the _____.

- boot topping
- stern
- bow
- **keel**

Note:
Static water pressure increases with depth; therefore, the keel, being the deepest point on the hull, experiences the greatest pressure.

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2. In a compartment that has been completely flooded with water, the greatest pressure will be exerted _____.

- at a point that is one-third from the bottom of the bulkhead
- at the vertical center of the bulkhead
- **along the bottom of any bulkhead**
- along the top of the bulkhead

Note:
Hydrostatic pressure increases with depth; therefore, the greatest pressure in a flooded compartment is exerted along the bottom of any bulkhead.

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3. Which of the precautions listed should be observed when taking on diesel fuel?

- Provide a portable fan to blow away fumes.
- **Prohibit smoking in the area.**
- Display a black triangle during daylight hours.
- Secure all lighting to the main deck.

Note:
Prohibiting smoking prevents ignition of flammable fuel vapors and is a standard safety precaution during diesel fueling operations.

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4. When should you expect to find an insulating flange in a fueling hose?

- When static electricity is not expected to be a problem.
- When a bonding cable is employed.
- When transferring LNG.
- **When the terminal is equipped with a cathodic protection system.**

Note:
Insulating flanges are used in fueling hoses to electrically isolate a vessel's systems from a terminal's cathodic protection system, preventing stray currents and potential arcing.

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5. To determine if all requirements of the Declaration of Inspection are met for oil transfer operations just prior to bunkering from a shoreside facility, _____.

- **vessel and facility are jointly and independently inspected by the designated persons in charge**
- vessel and facility are independently inspected by their respective designated person in charge
- facility is inspected by the designated person in charge of the vessel and vice versa for the vessel
- vessel and facility must be inspected by a representative of the Coast Guard captain of the port

Note:
To ensure all Declaration of Inspection requirements are met before bunkering, the vessel and facility must be jointly and independently inspected by their respective designated persons in charge.

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6. One consideration for determining the safest maximum rate at which bunker fuel may be received is by the _____.

- distance to the fuel storage tanks ashore
- **number of tanks to be filled**
- size of the fuel storage tanks ashore
- type of fuel transfer pump

Note:
The number of tanks to be filled limits the safe bunker fuel receiving rate because it dictates the need for timely control and redirection of flow to prevent overfilling.

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7. Why is it important for double bottom fuel oil tanks not to be topped off when loading fuel at cold temperatures?

- Fueling valve may become stuck closed and cause the fuel oil to spill before the valve can be opened.
- Increased viscosity of the product needs higher loading pressure, which increases the chances of a spill.
- Air pockets may cause the fuel to bubble out of the ullage hole.
- **A temperature rise of the fuel will cause an overflow from the tank vent.**

Note:
Fuel expansion during warming necessitates leaving ullage space in double bottom tanks to prevent overflow through the vent.

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8. As a precaution against oil spills when topping off fuel tanks, you should _____.

- close all tank vents to prevent overflow
- close the deck filling valve to reduce the pumping rate
- **notify the shore pumping station to reduce the pumping rate as tanks near full capacity**
- fill the tank to the bottom of the expansion trunk

Note:
The correct response is to notify the shore pumping station to reduce the pumping rate as tanks approach full capacity, which controls the flow at its source and prevents overflow. This aligns with regulations and industry best practices, unlike closing vents (which risks overpressure), closing valves (which creates back pressure), or filling to the expansion trunk (which leaves insufficient ullage).

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9. In accordance with 33 CFR Subchapter O (Pollution), who makes the final decision of when oil transfer may begin?

- The senior deck officer present
- **The designated person in charge**
- Any local Coast Guard representative
- The captain of the port

Note:
Oil transfer operations, as per 33 CFR Subchapter O, may only begin when authorized by the designated person in charge, who ensures all required conditions are met.

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10. In accordance with 33 CFR Subchapter O (Pollution), no person may serve as the person in charge of oil transfer operations on more than one vessel at a time _____.

- Unless radio communication is set up between the vessels
- Unless the vessels are moored clear of all docks
- **Unless authorized by the captain of the port**
- Under any circumstances

Note:
33 CFR Subchapter O limits a person in charge to one vessel at a time unless authorized by the Captain of the Port.
