



Purpose:

The e-learning module is designed for use in training the officers of oil tankers to perform onboard ship operations related to crude oil washing of tanks.

What is an e-learning module?

E-learning module is the electronic textbook on one or more sections. Theoretical materials can be accompanied by drawings, diagrams, photos, animations and videos. There is a test for assessment of knowledge gained at the end of each section.

Contents:

- Introduction
- Description of the crude oil washing system. General requirements
- Safe operation of the crude oil washing system
- Prevention of environmental pollution during crude oil washing

Regulations

- STCW Convention, Regulation V/1-1.
- STCW Code, Section A-V/1-1, Table A-V/1-1-2 "Specification of Minimum Standard of Competence in Advanced Training for Oil Tanker Cargo Operations".
- IMO Model course 1.01 «Advanced Training for Oil Tanker Cargo Operations».

Target audience

Deck department –
Management

Deck department –
Operational

Engine department –
Management

Engine department –
Operational

Vessel type

Oil tankers



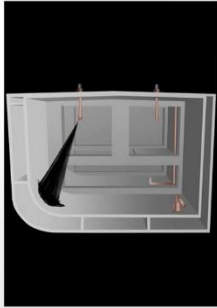
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Section 2: Description of Crude oil washing system: General requirements.

2.2 General provisions regarding Crude oil washing

MARPOL Annex I Regulation 35 requires that with respect to the ballasting of cargo tanks, sufficient cargo tanks shall be crude oil washed prior to each ballast voyage in order that, taking into account the tanker's trading pattern and expected weather conditions, ballast water is put only into cargo tanks which have been crude oil washed.

In addition, approximately one quarter of all remaining tanks shall be crude oil washed for sludge control on a rotation basis, but these additional tanks may include the tanks, which can be used for heavy weather ballasting. However, for sludge control purposes, no tank need to be crude oil washed more than once in every four months.



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Section 2: Description of Crude oil washing system: General requirements.

2.4. Description, design and purpose of basic components of Crude oil washing system.

PUMPS.

- The pumps supplying crude oil to the tank cleaning machines shall be either the cargo pumps or pumps specifically provided for the purpose.
- The capacity of the pumps shall be sufficient to provide the necessary throughput at the required pressure for the maximum number of tank cleaning machines required to be operated simultaneously as specified in the Operation and Equipment Manual.
- In addition to the above requirement, the pumps shall, if an eductor system is fitted for tank stripping, be capable of supplying the eductor sufficient driving fluid such that the bottom of the tank being cleaned is kept free of accumulations of oil and sediments towards completion of the tank washing process.



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Section 2: Description of Crude oil washing system: General requirements.

The number and location of the machines in each cargo tank shall be such that all horizontal and vertical areas are washed by direct impingement or effectively by deflection or splashing of the impinging jet.

- For horizontal areas of a tank bottom and the upper surfaces of a tank's stringers the total area shield from direct impingement shall not exceed 10 per cent of the total horizontal area.
- For vertical areas of the sides of a tank, the total area of the tank's sides shielded from direct impingement shall not exceed 15 per cent of the total area of the tank sides.



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Section 2: Description of Crude oil washing system: General requirements.

Where the drive unit for the tank washing machines are not integral with the tank-cleaning machine, sufficient drive units shall be provided to ensure that no drive unit needs to be moved more than twice from its original position during discharging.

The design of deck mounted tank washing machines shall be such that means are provided, external to the cargo tanks, which, when crude oil washing is in progress, would indicate the rotation and arc of the movement of the machine.

Where submerged machines are required, they should be non-programmable and, in order to comply with the requirements it must be possible to verify their rotation by one of the following methods:

- By indicators external to the tank.
- By checking the characteristic sound pattern of the machine. Where two or more submerged machines are installed on the same supply line, valves shall be



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Section 4: Pollution prevention.

U.S. Oil Pollution Act (OPA 90).

In 1990 US Government passed the Oil Pollution Act (OPA 90) aiming to prevent oil pollution in US waters. OPA 90 applies to the USA and its dependent territories. OPA 90 is applicable to all types of vessels, with exception to vessels, which are on transit passage through US waters to non USA ports.

OPA 90 states that any tanker ordered after the 30th June 1990, or delivered after the 1st January 1994, must be fitted with a double hull if it is to enter U.S. waters.

Other sections of the Act made it clear that all oil tankers would have to provide proof of financial protection against any or all pollution while in U.S. waters and that liability for pollution would rest solely with the owner/operator of the oil tanker. The possibility of unlimited liability makes the US Oil Pollution Act of 1990 different from other international recognized laws.

Each vessel should have a Vessel Response Plan (VRP).

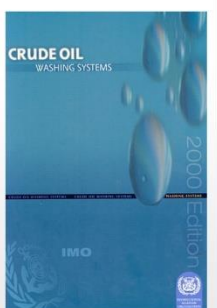


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Test tasks.



Text of question:

What are the requirements to the quantity of cargo tanks to be crude oil washed?

Choose the correct answer:

- ☐ Sufficient cargo tanks shall be crude oil washed prior to each ballast voyage in order that, taking into account the tanker's trading pattern and expected weather conditions, ballast water is put only into cargo tanks which have been crude oil washed.
- ☐ All cargo tanks.
- ☐ At least 50% of all cargo tanks.
- ☐ At least 25% of all cargo tanks.

Attempts: 1

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