BACKGROUND AND GENERAL REGULATIONS

1.0 INTERNATIONAL AND SWEDISH RULES

All tank cleaning operations carry a risk for combustion of flammable gases in the tanks. Cleaning also means the emission of flammable and hazardous gases. Tanks may only be cleaned in the port area provided all the conditions stipulated in these rules are met.

For operations on oil tankers, the International Chamber of Shipping, the Oil Companies International Marine Forum and the International Association of Ports and Harbours have published safety guidelines in the "International Safety Guide for Oil Tankers and Terminals", second edition published in 1984.

For operations on chemical tankers, the International Chamber of Shipping has published safety guidelines in the Tanker Safety Guide (Chemicals).

Note A new edition of the Tanker Safety Guide (Chemicals) entitled International Safety Guide for Chemical Tankers and Terminals is expected to be published in the beginning of 1987.

With regard to the handling of inert gas systems, there is also a handbook for the system and guidelines for inert gas facilities, "Revised Guidelines for Inert Gas Systems" in its latest edition (MSC/Circ 353) adopted by the IMO Sea Safety Committee, which is to be followed.

Work on vessels must be carried out in compliance with the relevant parts of the above-mentioned international guidelines.

The regulations published by the Swedish Maritime Administration or internationally recognised rules regarding the vessel's construction, equipment and handling procedures must be met.

2.0 GUIDELINES

2.1 Gas measuring

Mandatory gas measurements should be carried out by authorised personnel. This person should be authorised according to Section 2.3.2. The results of the measurement must be recorded.

2.2 Watch officer

2.2.1 The Master of the vessel must appoint a watch officer. The officer should have special authority for handling cargo oil and/or chemical cargo, depending on the vessel's cargo.

2.2.2 There must be proof of this special authority in the form of a certificate showing that the holder meets all the criteria stipulated in Rule V/I, Section 2, or Rule V/2, Section 2 in the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).

2.2.3 A watch officer must be present on deck when a tank that has contained flammable liquids with a flashpoint not exceeding 60° C (closed container) is being cleaned. A watch officer must also be on deck when a tank is being cleaned with wash water at a temperature that is below the flashpoint of the liquid that the tank has contained, by a factor of less than 10° C.

2.2.4 A watch officer must also be on deck when wash water is being pumped ashore.

2.3 Reporting

The Master or officer in charge must report to the port of his intention to clean or ventilate the ship's tanks at least 6 hours prior to commencing the work.

2.4 Checklist

Tank cleaning operations may only commence after the checklist (appendix) has been completed by the Master or officer in charge and approved by the responsible terminal representative.

2.5 Communication

When cleaning, ventilating and discharging wash water, there must be a secure line of communication between the watch officer and the responsible terminal representative must be established and maintained.

2.6 Venting

Venting may only be done via the tanks' ventilation systems.

2.7 Inspection

The port reserves the right to check that the equipment used for cleaning and venting tanks is in proper condition and that the methods stipulated are suitable.

3.0 CLEANING SHIP TANKS THAT HAVE CONTAINED FLAMMABLE LIQUIDS WITH A FLASHPOINT NOT EXCEEDING 60° C

Introduction

Tanks may only be cleaned in an inert, under-carburetted or unchecked atmosphere in the port area provided that all the safety regulations and conditions below have been met.

3.1 Inert atmosphere

Before starting tank cleaning operations, the tank atmosphere must be checked to ensure that the oxygen content does not exceed 8% by volume in the entire tank. Throughout the cleaning operations positive pressure must be maintained in the system. Inert gas supplied to maintain this positive pressure must be carefully checked regarding the oxygen content.

If the oxygen content exceeds 8% by volume in the cargo tank or the slop tank, or if under-pressure has developed in the tank, the cleaning operations must stop and the tank filled with inert gas until the oxygen content throughout the tank is 8% by volume or below. The above-mentioned statement regarding maximum oxygen content only applies to atmosphere containing hydrocarbons.

In a flammable atmosphere containing gases from chemicals, the actual safety oxygen content might be lower and must be verified in every individual case.

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3.2 Under-carburetted atmosphere

3.2.1 Venting

Before cleaning, the tank must be ventilated until the gas concentration in the atmosphere has been reduced to a maximum of 10% of the lower flammable limit (LFL).

During tank cleaning operations, measurements must be taken at regular intervals and, in the initial stages, very frequently. Mechanical ventilation must be continuous.

If a cargo tank has a ventilation system shared with other tanks and the above-mentioned conditions are not met, this tank must be separated from the shared ventilation system.

3.2.2 Portable cleaning equipment

If portable cleaning equipment is being used, all hose connections should be connected before the equipment is put in the tank, and they must not be disconnected until after the equipment has been removed from the tank.

3.2.3 Elevated gas concentration

All cleaning must be stopped if the gas concentration rises to 50% of LFL. Cleaning can be restarted when the gas concentration has dropped to 20% of LFL through prolonged ventilation.

When using hot wash water, see Section 3.2.8.

3.2.4 Recirculation

Used wash water must not be recirculated.

3.2.5 Steam

Steam should not be injected into cargo tanks when cleaning.

3.2.6 Static electricity

Precautionary measures must be taken to prevent static electricity according to the guidelines stipulated in Section 1.0.

3.2.7 Chemical additives

Chemical additives may be used if the temperature of the wash water does not exceed 60° C. The Master or officer in charge must ensure that there are adequate facilities for discharging such chemically contaminated wash water.

3.2.8 Cleaning with hot water

Hot water can be used for cleaning under the following conditions:

- If the temperature of the wash water does not exceed 60° C, cleaning operations must be stopped if the gas concentration rises to 50% of LFL.
- If the temperature of the wash water exceeds 60° C, cleaning operations must be stopped if the gas concentration rises to 35% of LFL.
- Cleaning operations that have been interrupted should only be resumed when the gas concentration has dropped to 20% of LFL through prolonged ventilation.

3.2.9 Draining

Cargo tanks should be drained and water should not be permitted to accumulate when cleaning. If the water rises to an abnormal level, tank cleaning operations must be stopped.

3.3 Unchecked atmosphere

3.3.1 Maximum tank volume

A cargo tank measuring more than 3000 m^3 should not be cleaned.

3.3.2 Capacity of cleaning equipment

The capacity of each nozzle in the cleaning equipment must not exceed 17.5 m^3/h, and the total capacity must not exceed 110 m^3/h.

3.3.3 Portable cleaning equipment

If portable cleaning equipment is being used, all hose connections should be connected before the equipment is brought into the tank, and they must not be disconnected until after the equipment has been removed from the tank.

3.3.4 Recirculation

Used wash water must not be recirculated.

3.3.5 Steam

Steam should not be injected into cargo tanks when cleaning.

3.3.6 Chemical additives

Chemical additives must not be used.

3.3.7 Heating of wash water

Wash water must not be heated to temperatures in excess of 60° C.

3.3.8 Draining

Tanks should be drained and water should not be permitted to accumulate when cleaning. If the water rises to an abnormal level, tank cleaning operations must be stopped.

3.3.9 Static electricity

Precautionary measures must be taken to prevent static electricity according to the guidelines stipulated in Section 1.0.

4.0 CLEANING SHIP TANKS THAT HAVE CONTAINED FLAMMABLE LIQUIDS WITH A FLASHPOINT EXCEEDING 60° C

Cargo tanks may be cleaned with water that does not contain any chemical additives and which has a temperature that is at least 10° C lower than the flashpoint of the liquid previously stored in the tank. In other cases the precautionary measures in Sections 3.1, 3.2 and 3.3 apply.

5.0 SLOP TANK

The use of slop or cargo tanks for recirculating or collecting wash water is only allowed on permission by authorised responsible terminal representative.

Note There is always a risk of gas and electrostatic charges being transferred to a slop tank by draining with the risk of the atmosphere in the slop tank becoming flammable and electrostatically charged. A slop tank that is not protected by an inert gas system must be carefully ventilated in order to keep the atmosphere under-carburetted, which can be easily done by keeping the highest possible liquid level. Checking by measuring should be done at frequent intervals or continuously. Free fall of wash water is not allowed in slop or cargo tanks. The safety oxygen content might be lower and must be verified in every individual case.

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PORT OF GOTHENBURG

CHECKLIST FOR CLEANING CARGO TANKS IN GOTHENBURG ENERGY PORT

Ship´s Name ..... Port ..... Berth .....

Date cleaning is to be carried out ..... Time cleaning is to be carried out, from ..... to .....

This checklist is an addendum to the Ship/Shore Safety Checklist, which should always be completed as soon as a ship moors at a berth. Cargo tanks may not be cleaned before the checklist has been completed and permission has been granted by the responsible terminal representative. Cleaning operations must be stopped immediately if conditions onboard or onshore so demand. Cleaning operations must not be resumed until the responsible terminal representative has granted permission to do so.

A	GENERAL (MUST ALWAYS BE ANSWERED)	Yes	No	Comment
A1	Are all ship's officers onboard familiar with the current rules regarding tank cleaning operations in the port?	☐	☐	
A2	Have necessary communication lines been established between the ship and berth, and are these being maintained?	☐	☐	
A3	Will the ship's cargo tanks be ventilated?	☐	☐	
A4	Have the cargo tanks to be cleaned contained liquids with a flashpoint below 60° C?	☐	☐	
A5	Is the temperature of the wash water **lower** than the flashpoint of the liquids in the cargo tank – by a factor of **less than** 10° C?	☐	☐	
A6	Is the wash water temperature gauge system fully operational and in good working order?	☐	☐	
A7	Has a watch officer with approved certification been appointed to supervise the deck throughout the cleaning operations?	☐	☐	
A8	Will wash water be pumped ashore during the cleaning operations?	☐	☐	
A9	If **yes** to A8: Has a watch officer with approved certification been appointed to supervise the deck when the wash water is being pumped ashore?	☐	☐	

B	CLEANING IN AN INERT ATMOSPHERE			
B1	Will cleaning operations be carried out in an inert atmosphere?	☐	☐	
B2	Is the inert gas system and necessary measuring equipment fully operational and in good working order?	☐	☐	

C	CLEANING IN AN UNDER-CARBURETTED ATMOSPHERE			
C1	Will cleaning operations be carried out in an under-carburetted atmosphere?	☐	☐	
C2	Is the necessary gas measuring equipment fully operational and in good working order?	☐	☐	

D	CLEANING IN AN UNCHECKED ATMOSPHERE			
D1	Will cleaning operations be carried out in an atmosphere other than an inert or under-carburetted atmosphere?	☐	☐	
D2	Is the volume of the cargo tanks to be cleaned less than 3000 m^3 each, **and** is the capacity of each washing nozzle less than 17.5 m^3/h **and** is the total capacity of all nozzles in each tank less than 110 m^3/h?	☐	☐	

I the undersigned have checked the items on this checklist and am satisfied that the entries made are correct to the best of my knowledge. I have also familiarised myself with the current rules regarding tank cleaning operations with water in the port and undertake to follow them.

The ship is permitted to carry out tank cleaning operations provided that the rules and regulations are followed at all times.

Date .....

Ship .....

Signature .....

Name in full .....

Rank .....

Date .....

PORT OF GOTHENBURG

Signature .....

Name in full .....

Position .....

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