MARS-NET KA220 PROJECT
Maritime Simulators and Training Facilities Network for
Enhancing the Exchange of Good Practices and Digital Learning

THE EXERCISE
PREPARING OF TANKER TO LOADING SINGLE CARGO

The exercise is prepared by using the simulator „LCHS 5000 TechSim". The Liquid Cargo Handling Simulator (LCHS 5000) is intended for the training and practising of tanker personnel and operators of liquid cargo loading terminals in the handling of liquid cargoes and operating the cargo-handling auxiliary equipment in accordance with the requirements of STCW-95, MARPOL 73/78 and other International Regulations and Conventions.

The vessel characteristics are given in the 1 table:

Table 1. The vessel characteristics

Tonnage and dimensions		Cargo handling	
DWT	47 400 tons	Cargo tanks (including slop tanks)	54 298 m^3
Length Overall	182,5 m	Ballast tanks	21 726 m^3
Length B.P.	174,80	Cargo hydraulic pumps	12 x 550 m^3/h
Breadth moulded	23,00 m	Ballast hydraulic pumps	2 x 1000 m^3/h
Depth moulded	17,50 m	Heating system	Steam

Task conditions and scenarios. A liquid cargo of **Kerosene** is to be loaded onto a given vessel (1 table). The ship's loading plan has been prepared and agreed, and the ship's holds are inert and ready for loading. The ship's crew has to prepare the ship's systems for loading, and start loading and once the maximum capacity of 1000 is reached, the task is considered complete.

The sequence of the task is given in the table below:

Table 2. Sequences of task

No.	Operation	Desription of operation
Prepa-ring	Operation before a tanker arrives port	Before a tanker approaches the port, there are several factors that must be considered: 1. Testing of cargo/ballast valves, sea valves, pipelines, pumps, inert gas systems, emergency stops. 2. Preparedness of fire-fighting, life-saving and anti-pollution equipment. A pollution drill held before a ship arrives in port will serve the purpose of checking all equipment. Any response during an emergency will be good since a drill had been executed recently. 3. Preparation of tanks, including the readiness of slop tanks. 4. Planning for proper distribution of cargo. 5. Checking of cranes/derricks, winches and other mooring gear. 6. Checking of all communication equipment. 7. Pumproom fans are to be running for at least 24 hours prior to arrival. 8. Ensuring that the oil record book is filled in immediately after each operation. 9. Fill in the pre-arrival checklist.
1.	Initial Orders	1. The load cargo – **Kerosene (density 805,9@22 ^{0}C)**. 2. All cargo tanks and slop tanks are inert. 3. According to an instruction from a liquid cargo terminal, the tanker will be moored port side.
2.	Vessel Moored Port Side To, Ready to Receive Terminal Personnel	4. Filling in the Pre-Transfer Checklist with the Terminal Staff 5. Explanation of the loading plan 6. Loading arms #3, and #4 will be used for loading operations

MARS-NET KA220 PROJECT
Maritime Simulators and Training Facilities Network for
Enhancing the Exchange of Good Practices and Digital Learning

No.	Operation	Desription of operation
		7. Point out any peculiarities, shore tank to be used and its details, cargo specifications, ship-shore communication and emergency stop procedures
		8. Loading rate on starting – 200 m3/h
		9. Loading rate – 1000 m3/h
3.	Removing blanks	The Terminal has indicated that the checklist is complete
		10. Removing the blanks from manifolds #3 and #4 portside
4.	Connecting loading arms	11. Checking the condition of manifolds #3 and #4 portside – are the blanks off?
		12. Asking the terminal to prepare loading arms for loading
		13. Change the status of manifolds to „Loading"
5.	Connecting hoses and testing them	14. Checking the condition of cargo hoses: are connected to manifolds # 3 and 4 and have been tested.
		15. Setting a cargo type „Kerosene" and a cargo flow to 200 m3/h
6.	Connecting pipelines together	16. Preparing a ship's cargo system for loading single cargo
		17. Opening all crossover valves between cargo lines (CV20, CV21, CV22, CV23, CV24 and CV202, CV212, CV222, CV232, CV242
7.	Opening valves on the drop line of cargo tanks	18. Opening valves CV06P and CV06S on dropline in cargo tanks # 3 P/S
8.	Opening manifold's valves	19. Informing the shore terminal that the ship is ready for loading
		20. After the terminal representative confirms that they are also ready for loading, open manifold valves CV15P and CV14P.
9.	Loading in all cargo tanks	21. Check the level of ullage in cargo tanks # 3P/S. If it is reducing, that means that cargo is going into the right tanks.
		22. Opening the valves on drop lines for all other cargo tanks, except Slop Tanks (CV10P, CV08P, CV04P, CV02P, CV02S, CV04S, CV08S, CV10S)
10.	Increasing of loading rate to max	23. Check the level of ullages in all cargo tanks.
		24. Setting a Cargo Flow to 1000 m3/h for manifolds # 3 and 4
11.	Preparing the ballast system	25. Start discharging the ballast water by gravity.
		26. Opening the valves COL V, F/P, BT1P, BT1S, BT2P, BT2S, BT3P, BT3S, BT4P, BT4S, BT5P, BT5S, INTERCON, BV3P, BV3S, BV2P, BV2S, SUCT1 and SUCT2
12.	End of exercise	27. Checking the condition of all cargo tanks (rate, ullages) and or ballast is discharging by gravity

Table 3. Criteria of assessment

Action	Tick	Grade
1. The ship is moored port side		0.5
2. Pre-Transfer Checklist is filled in		0.5
3. Manifold Ports CT3 and CT4 are blanked		0.5
4. For manifolds "CT3P CT3S" and "CT4P CT4S" selected Manifold State "Loading"		0.5
5. Selected cargo type "Kerosene"		0.5
6. Set a cargo flow to 200 m3/h		1
7. Opened all crossover valves between cargo lines (CV20, CV21, CV22, CV23, CV24 and CV202, CV212, CV222, CV232, CV242		1
8. Opened valves CV06P and CV06S on dropline in cargo tanks # 3 P/S		1
9. Opened manifold valves CV15P and CV14P		1
10. Loading in all cargo tanks		1
11. Opened valves CV10P, CV08P, CV04P, CV02P, CV02S, CV04S, CV08S, CV10S		
12. Set a cargo flow to 1000 m3/h for manifolds # 3 and 4		1
13. Ballast is discharging by gravity		1
14. Exercise is finished on time		0.5
TOTAL		**/ 10**