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INCREMENTO DI CAPACITÀ DI RIGASSIFICAZIONE (DL 17.05.2022, n. 50)**

FSRU Alto Tirreno e Collegamento alla Rete Nazionale Gasdotti

**Rapporto Preliminare di Sicurezza
per la fase di Nulla Osta di Fattibilità (NOF)
ai sensi del D.Lgs. 105/15**

**Allegato C.4.1.1.3-A
Procedure di Sollevamento**

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1 INTRODUCTION

Most lifts in CoolCo are routine, can be controlled by pre-prepared risk assessments and available competency. Provided basic safety rules are followed, lifts can proceed using normal management controls.

Very occasionally, a lift must take place that is unusual, heavy, or introduces new risks. In these cases, specific lift planning is needed.

This procedure defines the standards for controlling all CoolCo lifts.

2 PURPOSE AND SCOPE

To ensure all lifting operations are done safely, and in compliance with applicable regulations.

This document applies to all lifting and crane operations at CoolCo vessels, facilities and sites.

3 DEFINITIONS AND ABBREVIATIONS

3.1 DEFINITIONS


Basket / Frog	Device suspended from a man-riding crane for carrying personnel from one deck to another.
Lift Plan	A document that controls the proposed lifting operation. A lift plan is required for all lifts.
Man-Riding Crane	A crane that is designed constructed and certified for man-riding offshore. See section in text.
Non routine lifts	Lifts that cannot be defined as a routine lift

3.2 ABBREVIATIONS

ALARP	As Low As Reasonably Practicable
CCR	Cargo Control Room
HOD	Head Of Department
SWL	Safe Working Load

4 REFERENCE DOCUMENTS

- HSE 306 Safety checklist for lifting operations
- HSE 400 Permit to Work
- CREW 306 Crane Operator approval
- CREW 308 Authorisation to Operate Lifting Appliances
- HSE 419 Lift Plan

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5 RESPONSIBILITIES

Position	Responsibility	Notes
Master	Approval of personnel in lifting roles and positions. Approval of PTW for lifting operations and associated lift plans (this also applies for other companies operating onboard).	
Competent person	Planning and supervising a lift, selecting equipment, and lifting team.	A person who is designated by the company as having the competency to plan and supervise a specific lifting operation. The competent person must have the practical skills, theoretical knowledge and ability to produce and assess lift plans, do risk assessments, conduct pre-lift meetings and supervise the specific lifting operation. Typical examples of a competent person are Master/HOD, Chief Officer or Chief Engineer.
Lifting Engineer	Preparation of calculations, drawings, lift plans, rigging specifications.	The Lifting Engineer is an onshore position consulted for complex lifts.
HOD	Approves content of lift plans in association with the crane driver.	
Supervisor / Banksman	Co-ordinates the lift. Supervising the lift and lifting team. Making sure the lift and equipment is according to plan.	Direction of a crane driver, particularly in areas where the driver has no direct line of sight, or in confined areas.
Rigger	Preparing the load with rigging and tag lines. Deck control of load during lift with tag lines. Sea-fastening.	
Crane Driver	Operates the controls of a lifting device who must have the certification, training, experience, and competence to operate the relevant equipment. Approves the content of lift plans in association with the HOD.	Must be qualified to Sparrow's G5 or equivalent. Must have experience under supervision of offshore lifts before permitted to operate alone. Must have master's approval. Must be approved as Crane Operator (CREW 306)

6 COMPETENCE AND TRAINING REQUIREMENTS

All personnel operating cranes and lifting equipment must be approved by the Master.

7 LIFTING CRANE OPERATIONS PROCEDURE

7.1 LIFT CATEGORIES & REQUIREMENTS

All lifts must be categorised into one of the 3 below types:

Lift Category	Criteria	Requirements
Routine Lift	<p>Must fulfill <u>ALL</u> the following criteria:</p> <ul style="list-style-type: none"> ○ The lift has done before at the same vessel, installation or site, and by the crew nominated for lifting operations. ○ The lift uses the same or identical equipment as before. ○ The environmental conditions, experience level of personnel and supervision are the same as before. ○ The lift is a regular or routine activity such as moving a provisions or garbage skip or gangway. ○ The lift requires less than 80% of the crane's SWL at the planned radius. 	<ul style="list-style-type: none"> ○ Lift Plan* ○ Risk Assessment* ○ Authority to proceed. ○ Toolbox talk. <p><i>Note. PTW (HSE 400) and associated checklist (HSE 306) is not required for routine lifts.</i></p>
Non-Routine Lift	<ul style="list-style-type: none"> ○ Any lift that does not meet the criteria for a routine lift. ○ Blind lifts (where the crane driver cannot see the load) ○ If in doubt how to categorize the lift it should be categorized as a non-routine lift. 	<ul style="list-style-type: none"> ○ Permit to Work ○ Lift Plan ○ Risk Assessment ○ Toolbox talk
Special Lift	<ul style="list-style-type: none"> ○ Any non-routine lift that is unusual, critical, and beyond the capacity of CoolCo to manage, including: ○ Modular modifications to vessels. ○ Installation of vessel related subsea mooring equipment or subsea pipelines. 	<ul style="list-style-type: none"> ○ As per non routine lifts, plus the lift contractor must provide: ○ Engineering of lift, including relevant safety studies. ○ Certification and validation of all lifting equipment.

*The lift plan and risk assessment can be the same as used previously for the lift but must be reviewed annually by the HOD and lifting team.

7.1.1 Special Lifts

Special lifts are conducted by contractors to CoolCo. In these situations, it is CoolCo's role, normally controlled by a CoolCo Project Manager, to ensure that the contractor is using appropriate systems, equipment, experience, and controls such that risks to personnel, environment, and CoolCo property are ALARP.

Note. Special lifts are the responsibility of the contractor. However, the Master must verify that the lift plan is sufficient for the safety of personnel, environment, and property. If the Master requires technical evaluation of the lift plan, this must be provided by the CoolCo Project Manager or Technical Authority.

7.2 RISK ASSESSMENT

A risk assessment must be done for all lifts. It is permitted to use an existing risk assessment, but it must be reviewed and amended if necessary to make it suitable. The risk assessment should consider to following hazards:

- Crane collapse.
- Dropped objects.
- Swinging loads.
- Consequent effects on people and equipment.

7.3 LIFT PLAN

A lift plan is required for every lift. The type of lift plan depends on the lift category.

The objective of lift planning is to complete the lift safely, efficiently and in a technically adequate manner. The lift plan must be prepared by a competent person together with other relevant experience.

The lift plan must include:

- Control measures to address the risks from the risk assessment so the lift can be done safely.
- The equipment to be used and configuration.
- Lift design, including:
 - Rigging design and layout.
 - Load calculations.
 - Sketch or description of lift route.
 - Identification of clear pick-up and lay-down areas within the crane's load lifting radius.
- Lift procedure, including:
 - Preparations.
 - Equipment checks required.
 - Communication.
 - Nominated personnel including roles and responsibilities.
 - Step by step process that moves the load.

7.4 LIFTING EQUIPMENT TEST, CERTIFICATION AND MAINTENANCE

Cranes and lifting equipment to be used onboard the vessel must be certified, suitable for the lift and in good condition.

Lifting equipment must be tested, certified and colour coded as described in the table below:

Type of lifting equipment	Controls
Cranes and davits	Annual test and certification
Fixed lifting equipment, eg. padeyes	Annual test and certification Colour coded on test
Portable lifting equipment	6-monthly test Colour coded on test

Any portable equipment failing test must be quarantined and destroyed.

Any fixed equipment failing test must be removed from use, marked 'not to be used', and repaired.

7.5 LIFTING OF PERSONNEL

Operations involving the lifting of personnel must be assessed on every occasion and should be eliminated as far as possible unless there is no practicable alternative.

Equipment used for lifting of persons must be:

- Specifically designed or adapted for that purpose and operated within its design parameters.
- Reviewed to ensure that risks to persons being lifted are reduced to ALARP.
- Checked to ensure it complies with local regulations.

7.5.1 Requirements for Man-riding cranes


Cranes used for lifting / transfer of persons must be:

- Certified for man riding offshore by an appropriate body (DNVGL or similar).
- Fitted with "deadman" controls.
- Fitted with power load lowering (any free fall system locked out).
- Have been thoroughly examined in last 6 months by a competent person and a satisfactory report issued.
- Have been tested in last 4 years and a test certificate issued.
- Have hydraulic cylinders fitted with locking devices to prevent movement in the event of a hydraulic system failure.
- Fitted with control systems that ensure smooth movement of person being carried, limiting speed to $0,5\text{ms}^{-1}$.
- Fitted with limit switches to prevent movement beyond the machine's physical limits, including an over-hoist limit.
- With a SWL at the required radius of at least twice the weight of the personnel carrier and its contents.
- Fitted with a crane hook safety latch.
- Hoist rope at least 8mm in diameter.

7.5.2 Requirements for man riding baskets (frogs)

Man riding baskets must be:

- Designed, constructed, and certified for purpose.
- Thoroughly examined in last 6 months and a satisfactory report issued.
- Been tested in last 4 years and a certificate issued.
- Clearly marked with Safe Working Load and the maximum number of people that can be safely lifted.
- Inspected before each use, and this use recorded.
- Must have a safe means of access and egress.
- A storage system for baggage, tools, and loose items to contain them in event of the carrier tipping.
- Sufficient fall arrest (seat belts) points for the carrier's rated number of persons.
- For casualty evacuation, capacity to take and secure a stretcher with a casualty and medic.
- Use an anemometer, if available to check on operational wind speeds (this may be fitted on

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the crane, the vessel, or handheld meter).

7.6 PRE-LIFT CHECKS

Immediately before every use, the crane driver or supervisor must conduct the following checks to ensure cranes and lifting equipment are in good condition and suitable for the lift:

- Visual inspection for damage.
- Confirm it is in date for certification.
- Confirm it is in date for inspection.
- Confirm it is having the strength necessary for the planned lift.
- Conduct functions tests to confirm safety devices, including emergency stops are functioning as required.
- Conduct function tests as required by the manufacturer's instructions.

The lift supervisor / banksman must ensure the above checks have been done, and:

- Ensure the crane driver or equipment operator is authorised to operate lifting appliances.
- Ensure any faults or defects are reported.

Equipment must not be used if safety features are not functioning.

7.7 TOOLBOX MEETING / PRE-LIFT MEETING

A Toolbox Meeting must be done before all routine lifts.

A Pre-Lift meeting must be done before all non-routine lifts. The pre-lift meeting must:

- Include all relevant parties involved.
- Explain the roles and responsibilities of all persons involved.
- Explain step-by-step how the lift will take place.
- Explain the lift plan and risk assessment.
- Explain supervision and communications routines.

7.8 COMMUNICATIONS

Failures in communications are common causes of lifting incidents.

All involved personnel must be briefed on the communication arrangements, whether voice, radio and/or hand signal.

7.8.1 USE OF HAND SIGNALS

The hand signals to be used must be understood by all personnel taking part in the lift. An IMO poster presenting crane safety should be displayed at all relevant locations such as but not limited to:

- In close vicinity to hose handling cranes.
- In close vicinity to provision cranes.
- In areas normally used for taking on provisions, stores, etc.
- In areas with high likelihood of lifts taking place.

The IMO poster can be ordered from the IMPA catalogue or from Maritime progress as an example.

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7.9 NOTIFICATIONS

The Bridge/CCR must be informed before any lifts take place.

Uninvolved personnel must be notified of the lifting activity and kept clear of the lift area by use of temporary barriers.

7.10 STOPPING THE JOB

Any person can stop the lifting operation if they think there is a safety issue.

The lift is to be placed in a safe condition until the safety issue has been resolved to the satisfaction of the Supervisor / Banksman.

7.11 RECORD KEEPING

Records of lifting operations including procedures, lift plans and risk assessments are to be filed according to QA 203, OMS Overview, Records and Filing.

The vessel must have a Lifting Equipment Register onboard.

Review of lifting equipment records and reports must form part of the maintenance procedures for controlling the lifting equipment.

APPENDIX I - ADDITIONAL INFORMATION

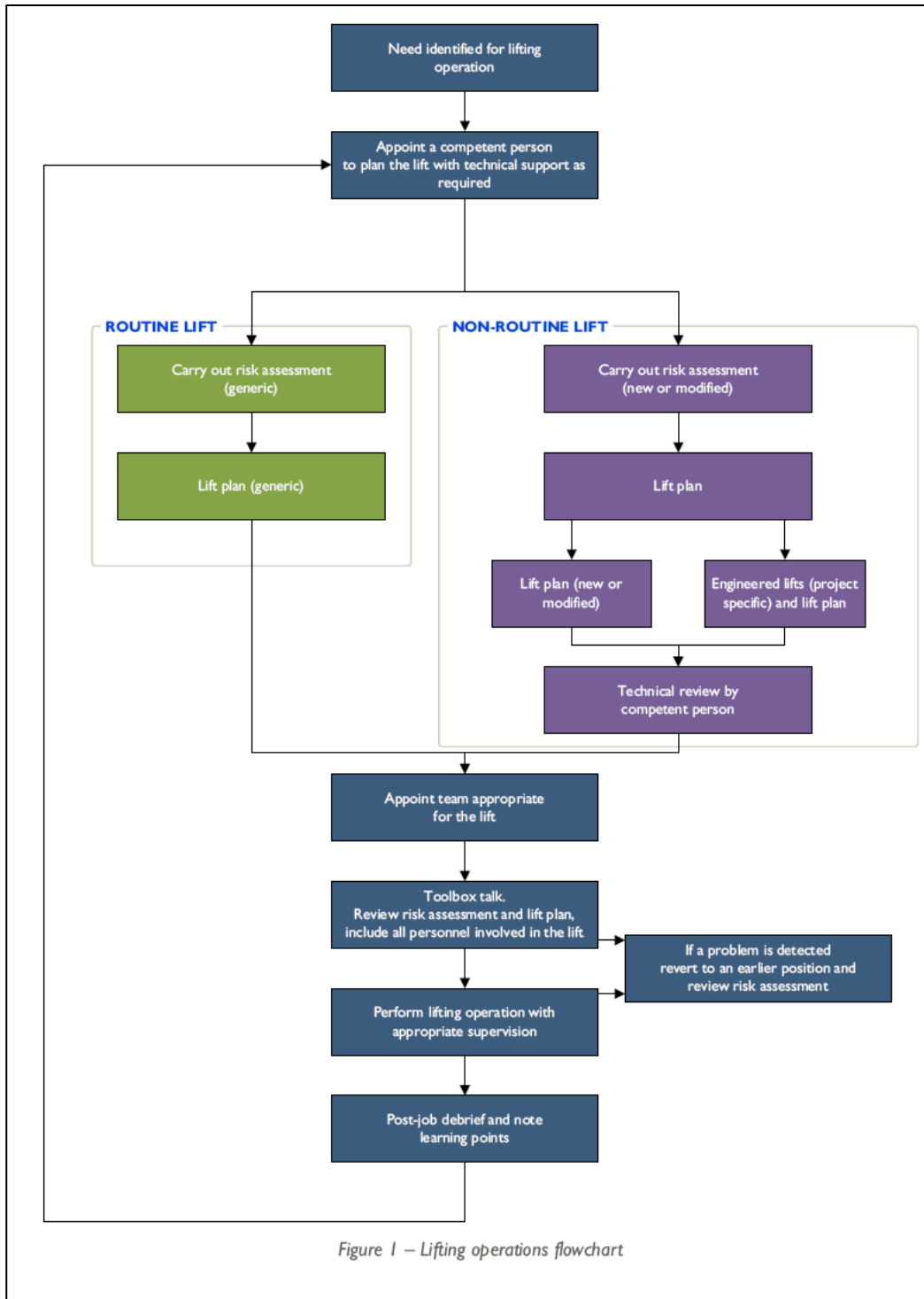


Figure 1 – Lifting operations flowchart

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