



الشركة العمانية للغاز الطبيعي المسال ش.م.م.
Oman LNG L.L.C.

PROCEDURE FOR LIFTING

This document contains 112 pages

Documents Classification:-

By default all documents will be categorised as Non-Critical / Non-Confidential unless otherwise specified

Risk Classification

Critical

Security Classification

Non-Confidential

Document No:	QEN-P118	Page	1 of 12
Issue No:	11	Print Date:	
Issue Date:	08/11/2018	Hard copy only valid on print date.	



Table of Contents

1	PURPOSE	4
2	SCOPE	4
3	DEFINITIONS	4
4	RESPONSIBILITIES	5
	4.1 AREA/MAJOR MAINTENANCE COORDINATOR.....	5
	4.2 WORKSHOP ENGINEER	5
	4.3 OPERATION.....	5
	4.4. CONTRACTOR (THE OGMS CONTRACTOR)	5
	4.5. CERTIFIED CRANE OPERATOR	5
	4.6. CERTIFIED RIGGER	5
5	PROCEDURE	6
	5.1 GENERAL LIFTING	6
	5.2 HEAVY OR COMPLEX LIFTING:.....	6
	5.3 BLIND LIFTING.....	7
	5.4 PERSONNEL LIFTING	7
	5.5 TRANSOPRT	8
6	WORK INSTRUCTIONS	8
	6.1 PLANNING LIFT	8
	6.2 PREPARING LIFT	9
	6.3 EXECUTION	9
	6.4 GENERAL SAFETY.....	10
7	REFERENCES	10
8	APPENDICES	10

Document No:	QEN-P118	Page	2 of 12
Issue No:	11	Print Date:	
Issue Date:	08/11/2018	Hard copy only valid on print date.	



ISSUE HISTORY

Changes from previous issue are indicated in the table below

Issue	Description	Date
0	Draft Issue for comments	25/04/1999
1	Issue for Approval	02/06/1999
2	Reformatted and Reference to color coding is made	11/11/ 2000
3	Bi-annual Review	17/01/2003
4	Bi-annual Review	24/01/2005
5	Reviewed	10/04/2009
6	Reviewed and updated	15/05/2010
7	Internal audit recommendation updated.	18/08/2010
8	Review after restructuring	01/05/2012
9	Internal audit recommendation updated.	03/09/2013
10	Updated for ERP Phase III implementation	12/10/2015
11	Review	08/11/2018

Distribution:	This document is accessible though EDMS Controlled Documents Pyramid (CDP)					
Custodian/Author	QEN/14D	Date:08/11/2018		Signature:		
Comments Received:	QEN/11	QEN/12	QEN/13	QEN/7	QEN/2	QHSE/2
Approval	QEN/1	Date:06/11/2018		Signature:		
Authorisation	QEN	Date: 07/11/2018		Signature		

Document No:	QEN-P118	Page	3 of 12
Issue No:	11	Print Date:	
Issue Date:	08/11/2018	Hard copy only valid on print date.	



1 Purpose

This procedure outlines the minimum requirements to be followed for safe lifting of objects in the QALHAT PLANT COMPLEX. This procedure excludes lifting of objects using Over Head Cranes.

2 Scope

This procedure applies to all personnel involved in lifting within QALHAT PLANT COMPLEX (site).

3 Definitions

Heavy Lifting is a term used in Qalhat plant complex to describe lifting a load of more than five (5) tons.

Complex Lifting is a term used in Qalhat plant complex to describe lifting a load in complex situation such uses of two or more lifting appliance, lifting height is more than 30 meters, lifting in difficult or restricted area, lifting over live process lines, lifting near overhead electrical power line.

Blind Lifting is a term used in Qalhat plant complex to describe lifting which at any point in the lifting operation; the crane operator cannot directly see the load.

Personnel Lifting is a term used in Qalhat plant complex to describe the lift of personnel using pedestal crane, mobile crane, derricks, winches, stabbing board, special hoist-support personnel lifting devices, mobile aerial platforms and all lifting and hoisting operation not specifically excluded. This procedure does not apply to personnel/freight elevator, diving operation, helicopter lifting, medical evacuation, specialist rope access activities, and manual handling.

Lifting Weight is the sum of the weights of the load, spreader bars, chain blocks, slings, shackles and any other attachment to the load.

Working Radius is the horizontal radius between the centre of rotation of the crane's boom and the centre of gravity of the load.

Elevation is the highest point of the equipment above ground level at which it is located.

Lifting Height is the height at which crane has to clear. This height includes equipment elevation, length of slings, chain blocks and allowance for any obstacles that may be in the path of the load.

Safe Working Load is the weight specified on a sling, shackle or chain blocks that it can safely lift.

Centre of Gravity is the point on load at which the whole weight of the load is considered to be acting.

Lifting Plan: A lift plan is a document used to ensure transfer and communication of all relevant information prior to conducting a lift.

Approved Crane Operator has a competency certificate (in form of a licence) to operate a crane issued by the Oman government and OLANG appointed certification body.

Rigger is a fully competent and experienced person who is certified for fixing lifting tools to the load and guiding the crane operator.

Over head Cranes are the fixed cranes installed in turbine platforms, RV platforms and in workshops.

OGMS- Oman LNG General Maintenance Services

Document No:	QEN-P118	Page	4 of 12
Issue No:	11	Print Date:	
Issue Date:	08/11/2018	Hard copy only valid on print date.	



4 Responsibilities

4.1 Area/Major Maintenance Coordinator

Coordinator shall execute all work requests for heavy lifting or complex lifting in relation to his area. He/she ensures the safety precautions taken by executor / contractor comply with the lifting plan before lifting and while lifting on site. The Area/Major Maintenance Coordinator shall ensure that only certified lifting equipment is used, ref QEN-P202.

4.2 Workshop Engineer

The OLNG mobile cranes and other lifting equipment are under the custody of the Workshop Engineer and the executor of lifting works shall make a request to the workshop for the usage of this equipment.

4.3 Operation

Operation is responsible for operational safety requirements in accordance with site permit to work system

4.4 Appointed person

Certified person responsible for preparing & reviewing lifting plans. Lifting plans shall be prepared & reviewed by two different appointed persons.

4.5 Contractor (The OGMS Contractor)

Contractor is responsible for proper operation and maintenance of mobile cranes which are owned by OLNG or himself or by outside contractor. Contractor shall designate qualified full time personnel-in-charge to execute the lifting works. The required tools, slings, chain-blocks and shackles shall be supplied by OLNG, however, if the crane is provided by the contractor, the slings shall also be from contractor unless agreed that OLNG will provide all equipment and sling shall be approved by the QEN/2 department.

4.5. Certified Crane Operator

Certified Crane Operator is responsible for ensuring that his license for driving and operating the crane is valid; ensure safe operation of crane by following proper crane operating instructions and carryout work as per instructions and lifting plan. Certified Crane Operator shall have a copy of the lifting plan, and understand it, before every heavy lift. He is responsible for the correct lifting and not overloading the crane at all time regardless of the load measuring tools. The Certified Crane Operator is the ULTIMATE DECISION-MAKER for to lift or not to lift for all reasons including high winds, i.e.; he has to be sure that he can safely carry out the lift.

4.6. Certified Rigger

Certified Rigger is responsible to use lifting tools as per lifting plan and for tying the load in a safe and secure way. Certified Rigger is responsible for guiding the crane operation with hand signals or radio signals during all lifting and driving actions of the crane.

Confirm that required Controls are in place and the lift is carried out as per the applicable lift Procedure. He needs to ensure all the lifting gears are inspected and have appropriate colour code.

Keep people clear of overhead loads and areas of potential impact.

Assign a Flagman when moving cranes near overhead electrical lines, reversing or manoeuvring in an area with plant, machinery or personnel.

Document No:	QEN-P118	Page	5 of 12
Issue No:	11	Print Date:	
Issue Date:	08/11/2018	Hard copy only valid on print date.	



5 Procedure

5.1 GENERAL LIFTING

- The lifting work has to be executed by certified rigger and certified crane operator.
- The work supervisor; certified rigger and the crane operator should discuss and understand the scope of lifting.
- Secure Permit to Work from operations with basis from agreed lifting method.
- The work supervisor should ensure the correct weight estimation and equipment centre of gravity.
- The rigger should use correct safe working load of the inspected lifting devices that have approved colour code.
- The certified Crane operator has to verify that the crane has a valid inspection certificate and the lifting equipment has the right colour code before starting the lifting operation.
- Position all necessary equipment and satisfy the precautions as stated in the Permit to Work.

5.2 HEAVY OR COMPLEX LIFTING:

- All job requests for heavy or complex lifting shall be raised through the CMMS if within the scope of OGMS, however, if outside supplied it should be via procurement of external services.
- All Heavy or complex Lifts need an approved Lifting plan.
- The executer should ask for a lifting plan having in mind maximizing the utilization of OLNG equipment. Outside sourcing requires OLNG maintenance coordinators' concurrence.
- The appointed persons prepare & review the lifting plan & then work can be executed as per approved plan.
- Secure Permit to Work from operations with basis from agreed lifting plan.
- The crane operator will be informed on the lift then he will sign in the lifting plan assuring his clearance.
- The certified Crane operator has to verify that the crane has a valid inspection certificate and the lifting equipment has the right colour code before starting the lifting operation.
- The supervisor of the job has to understand the Lifting plan and sign for this. He has to verify that the crane operator understands the job and has signed the lifting plan. He has to instruct the rigger and be convinced that the rigger understands the lifting job.
- Position all necessary equipment and satisfy the precautions as stated in the Permit to Work and lifting plan.
- The Contractor Supervisor-in-charge to make final checks and informs OLNG Maintenance supervisor prior to start of the lifting activity.

Document No:	QEN-P118	Page	6 of 12
Issue No:	11	Print Date:	
Issue Date:	08/11/2018	Hard copy only valid on print date.	



NOTES:

- During time breaks, the crane and the load shall be secured and/or placed under stable condition to ensure SAFETY both for personnel and equipment.
- Under normal circumstances, if the activities were not completed during the day, the heavy equipment shall pull out from site, however, if the complexity of the preparation entails reasonable amount of time, the maintenance engineer in charge shall seek concurrence from operations to leave the secured lifting set-up in place.
- The people should be clear from overhead load and area of potential impact.
- During shutdowns and higher priority jobs where heavy lifting is required to be carried out at night time, ensure adequate lighting & OLNG supervision is available. Under normal situations the night heavy lifting jobs should be avoided unless it is necessary (ALARP).
- Any deviation/learning points from the plan shall be recorded and plan updated. Major changes, i.e., repositioning of lifting equipment will require new lifting plan approval.
- After completion of the activity, all equipment shall be withdrawn leaving the area tidy and in order.
- Close the work request and update history record in the CMMS.

5.3 BLIND LIFTING

- All job requests for blind lifting shall be reviewed and agreed by Area coordinator.
- All blind lifting activities shall be controlled by two or more certified riggers with some means of continuous communication such as visual; Radio; whistle...as determined by the JHA.

5.4 PERSONNEL LIFTING

- Lifting plan is required for personnel lifting operation and shall be approved by Operation Manager (QOP).
Please note that standard operations on the jetty loading arms have blanket authority from QOP.
- A clear rescue plan shall be made before any personnel lifting operation.
- The executer shall be fully competent about personnel lifting operation.
- The lifting team members shall attend a pre-operation toolbox talk. In case of changes in the scope, team members in the lifting process shall re-attend toolbox talk to explain and understand the new change.
- Personnel lifting operation shall be executed with provision of sufficient lighting.
- The personnel platform/carrier shall be designed and certified for personnel lifting.
- The SWL shall be clearly marked on the personnel platform/carrier.
- The inspection colour code shall be clearly marked on the personnel platform/carrier.
- The personnel platform/carrier shall not be loaded in excess of its rated load capacity
- For personnel lifting, the crane shall be equipped with a device to clearly indicate the boom extended length; load indication; anti-two blocking device and automatic break such that when the operation control released motions are brought to rest.
- Crane shall be fitted with devices that hold the load securely in position in case of a break failure. Such device might be a secondary brake or hydraulic systems with counter balance valve and crossover check valves.
- Crane shall not travel while personnel are on or attached to the personnel lifting platform.
- The load to be lifted shall not exceed 50% of the crane capacity.
- Ensure effective Radio or visual communications between lifted personnel; rigger; crane operator and the work supervisor.
- Continuous communication is required to ensure wind speed not exceeding 12m/s.
- Linear speed of the basket shall not exceed 0.5m/s
- Personnel in personnel carrier shall connect their body hardness to the crane hook,

Document No:	QEN-P118	Page	7 of 12
Issue No:	11	Print Date:	
Issue Date:	08/11/2018	Hard copy only valid on print date.	



- Electrical cable shall not be handled during personnel carrier operation.
- Secondary lifting gears shall be fitted on the personnel lifting carrier to the crane hook.
- The lifting operator shall not leave the control of the crane whilst personnel lifting operation in progress.

5.5 TRANSPORT

- The crane should be fully parked and boom secured during transport.
- Assign a flagman (normally the rigger) with high visibility jacket when moving cranes near overhead electrical lines or piping, reversing or manoeuvring in an area with plant, machinery or personnel.

6 Work Instructions

6.1 PLANNING LIFT

- All heavy lifting operation should be carried out during daytime unless it is authorised by Area coordinator.
- All Heavy Lifts need an approved Lift plan.
- Estimate the weight of the equipment to be lifted, take into account that equipment may have collected dirt or fouling and has increased its weight over manufacturer's indicated weight
- Know the equipment size, condition whether suitable for lifting and centre of gravity.
- Check the equipment location and elevation. Find out if there are any obstacles in the way of the lift and how the load is to be laid down.
- Select the correct safe working load for slings, shackles, chain blocks and eyebolts and ensure that inspection dates and colour coding are valid. Ref QEN-P202 Select a sling or band of sufficient length according to the size of the equipment for controlled lifting. Use a spreader beam if required.
- Establish the total weight which is the total of hook, slings, shackles and equipment to be lifted
- Establish where crane can be parked. Crane should not be parked on soft ground.
- Determine the working radius. Estimate the lifting height.
- Determine the boom length required (appendix-5). Check with the crane loading charts for working radius, boom length, and lifting weight. Determine the best crane to use. But do not use a crane that is near the limit (percentage weight over load capacity >85%) of the crane specification. A crane loading chart should always be kept with the crane.
- Lifting plan is required for heavy or complex lifting, see appendix-2, showing a sketch of crane position, equipment position and location of equipment/platform etc in the vicinity, specify the type of crane, the slings, hooks, shackles. Show the weight and radius for the crane. Mention the load capacity for this crane from the crane chart and establish the percentage weight over load capacity.
- When percentage is over 75% an OLNG engineer has to approve.

Document No:	QEN-P118	Page	8 of 12
Issue No:	11	Print Date:	
Issue Date:	08/11/2018	Hard copy only valid on print date.	



6.2 PREPARING LIFT

- Ensure that the work permit is available before job starts. Demarcate lifting area by means of red and white warning tapes
- Counter check the working radius, boom length, and lifting weight with actual crane loading chart and lifting plan of the mobile crane used for the heavy lifting.
- Counter check the lifting plan available at the crane location and when percentage over 75% use measuring tape to confirm dimensions.
- Check the condition of the equipment to be lifted. Do not attach eyebolts at lifting positions that are cracked or weakened in any way.
- Get ready skids, sleepers (e.g. Wooden blocks) to lay down equipment.
- During heavy or complex lifting, mech. supervisor or sr. technician shall be present.

6.3 EXECUTION

- Carryout TBT lifting activity (Refer to appendix.1).
- Position the crane at the designated location. Ensure that all the outriggers are fully extended and when on soft soil supported by proper wooden blocks or steel plates. The crane must rest in a flat position on the outriggers, with its wheels fully lifted off the ground.
- Use a fully competent rigger who is familiar with the proper hand signals. At any one time, only the rigger shall be signalling to the crane operator. The rigger shall have a vest so he can be recognised easily as rigger. Always use clear and distinct signals to control lifting operations.
- Check for wind conditions, with a strong wind the equipment may move uncontrollably, in that case lifting should be stopped.
- Attach the shackles and slings to the lifting points of the equipment. Ensure that the shackle pins are fully closed and slings do not cross when attached to the crane hook.
- Tie a guide rope to the equipment. Control the load from swinging during lifting using the guide rope.
- Protect the slings on loads with sharp corner with packing, wood or sleeves.
- Ensure that the equipment is free from all fixed attachment before lifting. The crane hook should be positioned over the centre of gravity of the load before lifting to prevent load swing.
- for equipment that requires careful initial separation, jacking bolts or a chain block should be used. Ensure that the slings are tight before operating the crane or chain block.
- before fully lifting a very heavy load, observe the crane and slings by first lifting the load slightly from the original elevation.
- When unloading, do not trap slings between load and floor. Instead land load on skids (e.g. wooden blocks) so that the slings can be easily removed.
- Avoid shock loading the slings, this can put the slings under severe stress and result in failure of the slings.
- Care has to be taken at all times that no overhead lines are in the way of the lifts
- No person shall be allowed under a suspended lift.

Document No:	QEN-P118	Page	9 of 12
Issue No:	11	Print Date:	
Issue Date:	08/11/2018	Hard copy only valid on print date.	



6.4 GENERAL SAFETY

- Crane operator must maintain the highest state of alert throughout the lifting.
- Crane driver should follow the signals strictly given by rigger.
- Crane position area is to be checked.
- Area under the load should be cordoned off by safety lint and no person is to be allowed under a suspended load.
- Load should not be left hanging from the crane without the crane operator in the crane cabin.

7 References

- QEN-P202 Inspection procedure for lifting equipment
- Lifting and Hoisting, Shell HSSE & SP Control Framework, Version 3, December 2009

8 Appendices

- APPENDIX 1- TBT Lifting activity check list.
- APPENDIX 2 - lifting plan form
- APPENDIX 3 - Execution flow chart

Document No:	QEN-P118	Page	10 of 12
Issue No:	11	Print Date:	
Issue Date:	08/11/2018	Hard copy only valid on print date.	



Appendix 1: TBT for lifting activity check list.



TBT Checklist for
lifting activity.docx

Appendix 2



Update Lifting
plan.docx

Document No:	QEN-P118	Page	11 of 12
Issue No:	11	Print Date:	
Issue Date:	08/11/2018	Hard copy only valid on print date.	



APPENDIX 3 : Execution flow chart

EXECUTION

BEFORE START OF JOB:

- MAKE SURE YOU HAVE AUTHORIZED LIFTING PLAN IN PLACE IF YOU GO FOR HEAVY LIFT.
- CONFIRM ADEQUATE SPACE FOR LIFT LAYOUT & SWING RADIUS, CONSIDERING ANY HAZARDS.
- RECHECK CRANE CONDITION, CHECK OUTRIGGERS OF CRANE IS FULLY EXTENDED & RESTING ON WOODEN BLOCKS. THE CRANE MUST REST IN A HORIZONTAL POSITION WITH WHEELS OFF THE GROUND.
- CHECK WIND SPEED.
- CHECK THE SLINGS, LIFTING POINTS, COLOR CODING.
- PERFORM TBT (Ref. to checklist).



BEFORE STARTING THE LIFT:

- PROTECT SLINGS FROM SHARP CORNERS.
- MAKE SURE ALL SHAKLES, BOLTS, LATCHES ARE WELL SECURED TO AVOID SLIP.
- CHECK EQUIPMENT IS FREE FOR LIFTING AND ATTACH TIE LINE TO GUIDE LOAD.



DURING LIFTING:

- DO NOT USE THE CRANE FOR BREAKING LOOSE EQUIPMENT, BUT USE JACKING BOLTS, CRAWBAR ETC.
- LIFT FEW CM OFF THE GROUND AND CHECK FOR OVER LOAD ALARM.
- USE CHAIN BLOCKS FOR PRECISE LIFT.
- DO NOT GIVE SHOCK LOAD.
- LIFT AS PER SPECIFIED PROCEDURE FOR THE EQUIPMENT



- LAYDOWN IN CLEAR AREA
- LAYDOWN EQUIPMENT ON SKIDS OR WOODEN BLOCKS.
- TIE-UP THE LIFTING GEARS.

Document No:	QEN-P118	Page	12 of 12
Issue No:	11	Print Date:	
Issue Date:	08/11/2018	Hard copy only valid on print date.	