



Petroleum Development Oman L.L.C.

SP-2273: Specification for Lift Planning and Execution

Document ID	SP-2273
Document Type	Specification
Security	Unrestricted
Discipline	UED
Owner	UEQ/3
Issue Date	Feb 2024
Version	4

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i Document Authorization

Authorised for Issue

Document authorization		
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ii Revision History

The following is a brief summary of the 4 most recent revisions to this document. Details of all revisions prior to these are held on file by the issuing department.

Version No.	Date	Author	Scope / Remarks
Version 0	Sep-2007	Hugo den Boogert, UEC/14	New Lift Planning /- Execution procedure – Initial Issue
Version 1	Sep-2011	Hugo den Boogert UEQ/3	Amendments reflecting input users
Version 1.1	May-12	Robin Norman UOP6	Added Interim Amendment 1709_0412_01
Version 1.2	June-15	Hugo den Boogert UEQ/31	Added Interim Amendment 1709_0615_02
Version 0. From PR to SP	Feb-2018	Rabani, Fahad UEQ/31	PR-1709 revised entirely to SP-2273
Version 1	Nov-2018	Rabani, Fahad UEQ/31	Added App. 4 & 5 for incorporating requirements for Forklift operations
Version 2	Feb-2019	Rabani, Fahad UEQ/3	Added App. 6 for incorporating Standard Operating Procedure for Creating A Lift Plan and Execution.
Version 3	April-2021	Rabani, Fahad UEQ/3	Version 3 issued, reflecting users input and business need
Version 4	April-2024	Rabani, Fahad UEQ/3	Version 4 issued, reflecting users input and business need



iii Related Business Processes

Code	Business Process (EPBM 4.0)

iv Related Corporate Management System (CMS) Documents

The related CMS Documents can be retrieved from the Corporate Management Portal (CMS).

Doc. ID	Document Title
PL 04	HSE Policy
CP-117	Project Engineering Code of Practice
CP-122	HSE Management System
SP-1242	Activities within Vicinity of Overhead Power Lines
SP-2000	Road Transport
SP-2001	Load Safety and Restraining
SP-2275	Lifting and Hoisting equipment inspection and testing requirements



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1 Introduction

Lifting operations have always been identified as one of the main contributors to potential loss of life, personnel injuries and asset damages in the Oil, Gas & Petroleum industry. It is therefore necessary for all lifting operations to be appropriately planned, managed on a risk-based approach and in full adherence to the COMPANY specifications and industry best practices such as International oil and gas producer recommended practices

1.1 Scope

This SP shall apply to all work activities involving lifting equipment such as mobile, crawler, tower, overhead travelling, portal, jib cranes and lorry crane/ loader, etc. (specialised lifting operations on offshore and earth moving machineries are excluded).

1.2 Purpose

The purpose of this SP is to define the minimum requirements for a robust lifting management system to be followed and implemented by any party involved with the management or execution of lifting operations in the COMPANY and competency level of persons performing roles associated with safe Lifting and Hoisting.

This specification defines the operational controls for the planning and management of lifting activities, managing lifting equipment and lifting accessories, and competency of persons performing roles associated with safe Lifting and Hoisting.

This SP is not intended to provide technical details on any specific lifting equipment. It is therefore recommended to consult the manufacturer or supplier when more technical details are required.

1.3 Applicability

This SP applies to all COMPANY employees and contractors, including visitors working under the COMPANY. It is to be used in conjunction with all applicable legislation, including relevant national standards for Oman.

This SP prohibits a person from riding or travelling on the load, lifting hook, sling, platform, or another lifting medium.

1.4 Exclusions

This procedure does not apply to:

- Elevators (Lifts) in the building
- Drilling crown block, travelling block and top drive operations
- Ship anchor handling, marine towing, and routine ship operations not directly associated with E&P activities, e.g. ship maintenance
- Helicopter lifting and hoisting operations
- Diving personnel operations
- Earthmoving equipment and operations
- Fall protection and rope access equipment
- Working at height
- Elevators and escalator.



1.5 Changes to the Specification

Responsibility for the upkeep of the Document shall be with the Functional Manager UEQ, the Owner. Changes to this document shall only be authorised and approved by the Owner.

Users of the Document who identify inaccuracy or ambiguity can notify the Custodian or his/her delegate and request changes be initiated. The Requests shall be forwarded to the Custodian.

The Document Custodian on behalf of the Document Owner shall ensure review and re-verification of this procedure every 3 years.

2 Process Definition

- Company : Petroleum Development Oman LLC (PDO)
- CoG : Canter of Gravity
- ABA : Accrediting Bodies Association
- FLT : Forklift truck
- IPAF : International Powered Access Federation
- LEC : Lifting Equipment Controller
- MEWP : Mobile Elevator Work platform
- NPORS : National Operator Registration Scheme
- PIC : Person in Charge
- RTITB : Road Transport Industry Training Board
- ALARP : As Low As Reasonably Practicable
- RCI : Rate Capacity Indicator
- RCL : Rate Capacity Limiter
- PTW : Permit to Work
- SWL : Safe Working Load
- OEM : Original Equipment Manufacturer



3 Definition

3.1 Lifting operations:

A lifting operation is an operation concerned with the lifting and lowering of a load includes material or people. A lifting operation shall be performed manually or using lifting machine.

3.2 Lifting Equipment:

Work equipment for lifting or lowering loads including its attachments (used for anchoring, fixing or supporting the load). It includes lifting accessories or loose gears, lifting appliances and lifted equipment (load).

Lifting Equipment shall only be used if:

- It has adequate strength for its intended use.
- A suitable margin of safety is applied, based on the accuracy of quantifiable data, lift characteristics and environmental conditions.
- It meets relevant legal requirements and is designed in accordance with a recognised industry standard and/or code applicable to its intended use and environment where the task will be performed.
- Has valid thorough examination certificate.

3.3 Lifting appliances:

Any mechanical device capable of raising or lowering a load, e.g. cranes, forklift trucks, powered hoists, manual hoists, lever hoists, beam trolleys, winches, runway beams, mono-rail hoist and equipment like containers, skids used to lift the material with help of lifting appliance and accessories.

Lifting appliances such as trucks with self-loading crane, forklifts and mobile cranes used at COMPANY worksites shall comply with the requirements included in the Road Transport Specification SP-2000.

3.4 Lifting accessories:

Lifting accessories means a component or equipment are attached to the lifting machinery, allowing the load to be held, which is placed between the machinery and the load or on the load itself. These accessories include amongst other chains, ropes, slings, shackles, eyebolts and open wedges, etc.

3.5 Lifted equipment / load

The load includes any material or people (or any combination of these) that is lifted by the lifting equipment. Loads are often provided with permanent or semi-permanent fixed or attached points for lifting. In most cases, these are considered to be part of the load. Examples of loads include:

- Loose bulk materials.
- Basket.
- Sacks, bags, pallets and stillages.
- Discrete items (such as a large concrete block).
- Machinery and any permanently attached lifting eyes.



3.6 Exclusion zone:

Exclusion zones are barricaded area with controlled access to prevent access to the lifting area, all lift plans shall state the exclusion zone(s), verifying available materials to create exclusion zones such as tape and fence.

3.7 Competent person:

A qualified person who has enough appropriate practical & theoretical knowledge, skill and experience of the lifting equipment and lifting operation.

4 Management of lifting operations

A safe system of work shall be established and followed for every crane installation operation or lifting operation, whether it is an individual lift or a group of repetitive operation. The safe system of work shall include:

- Planning of lifting operation, including preparation of lift plan, risk assessment and method statement.
- Selection, provision and use of a suitable crane(s) and work equipment.
- Any necessary preparation of a site for lifting operation, including any ingress or egress for the crane(s).
- Any rigging, de-rigging or setting up of crane(s), e.g. manual boom extensions, stabilizers, outriggers and counterweight.
- Inspection, maintenance, thorough examination and, where necessary, testing of crane(s) & equipment and ensuring reports are available.
- The provision of properly trained and competent personnel who have been made aware of their responsibilities.
- Adequate supervision by properly trained and competent personnel having necessary authority.
- Coordination of lifting machineries movements to avoid collisions between machinery and other items of plant or structures.
- The safety requirement for persons who are involved in lifting operation.
- Number of involved people with level of their competency.

5 Role and Responsibilities

5.1 Asset Manager

Asset Managers are responsible for ensuring that the activities they control are managed in accordance with the requirements of this Specification.

5.2 Lifting Subject matter Expert

A Lifting Subject Matter Expert (SME/PTE) is defined as a “Technical Authority” for providing expert lifting consultation, endorsement and verification of contractor complex lift methodologies and procedures. The term “SME / PTE” can be a job title by itself, or a functional description of the role.



5.3 Contractor

Contractor is responsible for ensuring the following when lifting equipment is being used:

- All risks arising from operations involving lifting equipment are suitably and sufficiently assessed by a competent person and appropriate control measures implemented
- All lifting operations are suitably planned, supervised and carried out in a safe manner
- Planning of a single lift or series of lifts shall address the risks identified by the risk assessment and that appropriate control measures have been implemented (safe systems of work, lifting plans etc.)
- All relevant information, training and instruction are given to users of lifting equipment and they are competent to carry out those tasks
- All persons using lifting equipment shall work within the agreed safe working practices, reference information, instruction and training given
- A system for the reporting and removing from use any lifting equipment that has developed a fault or defect is established.

5.4 Contract Holder

Contract Holders are responsible for communicating this specification to contractors, and requirements of this Specification are adhered to within the scope of their contracts.

5.5 Executing party

The overall responsibility to ensure that lifting operation is carried out safely and in accordance with SP requirements rests with a party executing the lifting operation and shall be responsible:

- To identify lifting parameters needed to execute the work
- To prepare a lift plan and to ensure that a risk assessment is carried out
- To source a certified lifting equipment from registered companies under their current contract
- To resource a sufficient number and competent crew for the task
- To constantly monitor the approved plan and identify improvement for future work.

5.6 Vehicle marshal

A person who is nominated and authorized to control and manage machineries movement and parking, and shall:

- Have a proper training, knowledge and experience of the work being carried out
- Have a good understanding of signs and signals, approved hand signals and different forms of communication
- Identify and maintain PPE appropriate for vehicle marshal duties
- Perform all necessary safety checks at the work area including stop blocks and tipping areas
- Control machineries movement
- Guide machinery in a forward and reverse direction including confined spaces and “blind areas” safely and efficiently
- Ensure safe parking



5.7 Lifting crew

A lifting crew shall ideally, as a minimum, consist of a Lifting Supervisor, Appliance Operator, a Signaller and a Slinger, except routine activities or basic lifting using overhead travelling crane in the building/workshop, chain-block or lorry crane operations, etc Lifting Supervisor and Signaller and Slinger role it may combine. At the discretion of Appointed Person, the size of the lifting crew may differ depending on task complexity.

All lifting personnel shall be aware of their roles and responsibilities to execute and complete lifting operations in a safe manner. Anyone has the right to STOP WORK upon any deviation(s) from the lift plan or unsafe conditions or actions observed.

6 Competence

Only competent personnel shall be deployed as part of the lifting crew. The positions of the entire lifting crew are regarded as safety critical, hence all shall meet minimum training and competency requirements, that:

- The minimum required level of competence is RTITB or NPORS accreditation or IPAF for mobile elevator workplace platform only.
- Anyone who intends to participate in any lifting operations shall have a valid competent E-card that indicates his competency level.
- Where an individual has not met the defined level of competency or is under development plan (trained operator), he shall only work under direct supervision at all time.

6.1 Appointed Person

To ensure a safe system of work, one (1) person shall be appointed to be in overall control of lifting operation and to act on behalf of organisation requiring the load to be lifted. The appointed person shall have proper technical, practical and theoretical training, knowledge and experience of the work.

The duties of the appointed person shall include:

- Responsible for planning and developing lifting operation.
- Responsible for approving routine lift plan.
- Ensure a safe system of work is implemented, all foreseeable risks identified, and control measures implemented to eliminate or mitigate the risks through implementation of a Lifting Plan and PTW system.
- Ensure that the lifting equipment to be used is properly maintained and certified in accordance with legislative requirements.
- Ensure that the lifting equipment has resourced to carry out the lift safely
- Ensure that all incidents, near misses, equipment failure or damage are reported and recorded.
- Where appropriate, seek additional support and expertise including the use of external specialists to assist them with planning of lifting operations.
- Selects the correct crane/s and lifting accessories for the job.
- To assess site conditions and equipment and make recommendations based on the type of task being carried out.
- Provide a proper hand-over to the lifting supervisor directly.



6.2 Lifting Supervisor

A person who has been authorized to supervise lifting operations and shall:

- Have proper technical, practical and theoretical training, knowledge and experience of the work being carried out.
- Be briefed and instructed on outcomes of risk assessment and fully understand requirements of lifting plan for lifting operation to be carried out and an understanding of all those involved in the task.
- Ensure that the worksite is physically safe for lifting operation e.g., there is no physical obstruction in the path of load.
- Ensure that personnel deployed as part of lifting team are suitably trained, competent and certified, and have been briefed on the lifting operation.
- Supervise lifting operation until the end.
- Be able to assess changes in circumstances e.g. ground conditions, and where appropriate stop a lifting operation if the risk is unacceptable or if it is considered unsafe to carry on.
- Conduct a toolbox and discuss 10 questions for safe lift.
- Ensure validity of equipment certificates.
- Ensure competence of lifting crew.

6.3 Operator

There are different types of lifting machineries and the operator is one of the most important personnel of the Lifting Team. One of the key competencies of appliance's operator is the ability to read and understand the load capacity chart. The lifting equipment operator shall:

- Not attempt any lifting operation or use lifting machineries, without prior training.
- Be certified as an operator for that specific machine.
- Carry out lifting operation in accordance with the lifting plan.
- Ensure they fully understand the lifting machine and its operation.
- Ensure the machine is safe to be used.
- Carry out pre-use checks of lifting machineries prior to use and ensure there are no obvious visual defects.
- Ensure all outriggers are extended as per lift plan and load chart.
- Ensure to place appropriate mats with correct size as per the lift plan
- Not leave the machine without attendance, unless it is switched off and parked safely.
- Stop the lift whenever unsafe conditions are observed.
- Ensure the machine is parked in a designated / safe area.

6.4 Signaller

A person responsible to give a signal to the operator to ensure safe movement of machine and load and shall be:

- Trained in techniques of signalling and instructions in a common signal code.
- Capable of giving precise and clear verbal instructions where audio equipment (e.g. radio) is used and in its operation.
- Able to establish weights, balance loads and judge distances, heights and clearances.
- Capable of initiating and directing safe movement of lifting Appliances and load; and
- Play the role of lifting supervisor in routine lift ONLY.



Note: The signaler shall wear a unique visible vest and stands in a secure position where they can see the load and can be clearly seen by the crane operator.

6.5 Slinger

A person responsible to attach and de-attach the lifting accessories and shall be:

- Physically able to handle lifting accessories.
- Trained in techniques of slinging.
- Capable of selecting accessories that have been identified in the lift plan, assessing their condition and suitability prior to use.
- Ensure that lifting accessories are within thorough examination period, with valid colour code and in good condition.

6.6 Lifting Equipment (Loft) Controller

A person responsible to control and maintain the loft. Every site shall appoint a competent Lifting Equipment Controller and shall:

- Issue only safe lifting accessories.
- Accept returned accessories if are in safe condition.
- Conduct pre and post check.
- Maintain loft register.
- Maintain lifting accessories colour code.
- Ensure lifting accessories are certified.
- Be responsible for loft and quarantine area.

7 Lifting equipment documentation

7.1 Rated capacity (Load) charts

Readily understandable rated capacity charts applicable to the various specified operating conditions of the lifting appliances; with appropriate down, rating for special applications and it shall be permanently displayed to the operator.

7.2 Operation manuals

Operating manual in appropriate language(s), containing adequate information on operating instruction of appliances and shall either be kept with the appliance if it moves from one site to another or at a place of easy access for equipment that operates in the same place.

7.3 Thorough examination / Test certificates

A certificate issued by a approved third-party giving detail of test that certifies lifting equipment are fit for safe use. The test certificate shall be retained as part of lifting equipment records.



7.4 Daily inspection report

The daily inspection for lifting machineries shall be carried out by operator to ensure that the equipment is fully functional by performing the necessary tests. The inspection shall be performed by a qualified operator prior every shift and shall be documented.

7.5 Maintenance requirements and records

All lifting equipment shall be maintained and recorded as per manufacturer’s instructions and / or owner maintenance procedure.

8 Categorizing Lifting Operations

Lift categorization segregates types of lifting and hoisting operations based on the risk level of the operation. All lifts including off-loading must be categorized. A lift can be either Routine or Non-Routine. Non-Routine Lifts are sub-divided into Simple and Complex Lifts to reflect increasing risk. Non-Routine Complex Lifts represent the highest level of risk.

Any re-categorisation shall be properly documented, considered as a form of Management of Change (MoC), to capture all deliberated risks and agreed way forward.

For any scenarios not listed within the following outlined categorisations, the Lifting SME/PTE shall be consulted for the correct way forward. Guidance on categorization of lifts is provided in Table 1: Lifting Categorization.

Lifting categories	Category-1 (Routine)	Category-2 (Simple)	Category-3 (Complex)
Risk Rating	Low	Medium	High
Approver	Contractor	Company	Company
Condition	All conditions shall be met	Any of below	Any of below
	<ul style="list-style-type: none"> Gross load weight is less than 50% of crane rated capacity Load is in regular shape CoG is known Gross weight is known Liftin points are known Single crane Day operation Simple rigging method Weather condition is normal 	<ul style="list-style-type: none"> Gross load weight over 50% but less than 85% of crane rated capacity. Abnormal operation condition The weight distribution is uneven or has potential to shift CoG Environment condition is abnormal. Load with unusual shape 	<ul style="list-style-type: none"> Gross load weight over 85% Lifting or lowering people More than one lifting appliance at same time Restricted area, power line, confined space, blind lift and over or close to live plant Unknown CoG Load that transfer from one lifting appliance to another



		<ul style="list-style-type: none"> Weight of the load has been estimated Lifting points are unknown The load with excessive dimension Night operation Complex rigging method 	<ul style="list-style-type: none"> Load to be tilted or rotated Subsea lift
Documentation and measures controls	<ul style="list-style-type: none"> Generic lift plan PTW Generic risk assessment Tool box talk Valid inspection certificates Valid competency cards 	<ul style="list-style-type: none"> Specific lift plan Specifics risk assessment GBC calculation Tool box talk Company approval Valid inspection certificates Valid competency cards 	<ul style="list-style-type: none"> Specific lift plan Specifics risk assessment Method statement Step by step instruction GBC calculation Tool box talk Company approval Valid inspection certificates Valid competency cards

Table 1: Lifting Categorization

9 Lifting Operation General

9.1 Planning

The level of planning is differs from one activity to another, however in all cases all lifting operations associated with mobile cranes shall have a documented lift plan. All critical lifting parameters such as weather conditions, visibility, ground stability and slope, surrounding operations and installations, site ingress and egress, lifting equipment, and personnel as a minimum shall be identified and controlled during risk assessment and preparation of the Lift Plan. Ref to Appendix 6.

The lifting supervisor shall ensure that these conditions are monitored as lifting operations proceed to ensure continued safety.

[SOP for developing lift plan steps.](#)

9.1.1 Site Survey

It is essential that a survey be conducted to establish details of load to be lifted i.e. weight, size, type of lifting lugs etc., details of the ground conditions, lifting route the access route. The survey shall be completed by appointed person and it shall be documented.



9.1.2 Risk Assessment

The site survey is an ideal time to begin a risk assessment of the proposed lifting operations that will be carried out. The aim of the risk assessment is to prevent incidents that arise from hazards during the lifting operations. With the identified hazards, the risks posed by these hazards can be reduced to as low as reasonably practical through the implementation of control measures, using the principle of the hierarchy of controls.

9.1.3 Selection of Equipment

An equipment assessment must be completed as part of the risk assessment. The objective of the equipment assessment is to identify hazards and assess risks associated with the equipment for foreseeable range of lifting operations. Based on this assessment, the appropriate lifting equipment for the lifting operation shall be selected. The selection of lifting equipment shall be incorporated, to include:

- Safety factors
- Angles of use
- Applied loadings or tensions
- Capacity
- Connection points
- Fitness for task condition
- Environment
- Stability
- Frequency
- Duration of operation

9.1.4 Lift Plan

The Lifting Plan is a set of plans which is created for use in any lifting operation. All lifting operations shall have a proper planning, risk assessment and PTW if applicable. Refer to Appendix 6.

The appointed person shall initiate the lift plan and shall include with the following aspects if applicable:

- Lift plan title, description and scope
- Location where the task will be performed
- Lift Plan number, date and revision number
- Method of Hands-Free Lifting to be used (e.g. Tag Line, push pull poles)
- Method of communication
- Lift categorisation
- Signatures and names of persons providing approval
- Load details including descriptions, dimensions weight and Centre of Gravity
- Details of the Lifting Appliance(s) to be used and its safe operating limits
- Configuration of appliance(s) and SWL at the radius used (percentage of utilisation)
- Applied ground bearing pressure
- Capacity of ground at the task location
- Number of personnel required for the task and their roles
- Details of Lifting Accessories used
- Method statement including sequence of steps to be followed (step by step procedure)
- Sketches and drawings and or photographs of plan view
- Rigging arrangement (lifting accessories) and calculations
- Task risk assessment / Job hazard analysis



Note: For routine lifts, the “Lift Plan” it may be ‘generic’ in nature but will still be reviewed prior to each lift, or before a series of similar lifts.

9.1.5 Communication

There must be an agreed method of communication between crane operators and a single person. All forms of communication must be tested prior to the lift commencing to ensure they are compatible with the environment they are being used in and confirm they are in a serviceable condition.

When conducting a dual crane lift, a single person must be nominated and responsible for coordinating the dual lift. The communication must be:

clearly defined and documented on the Risk Assessment discussed, understood, and agreed during the work party safety briefing.

9.1.6 Pre job meeting – Toolbox Talk

Prior to carrying out any lifting and hoisting operation certain precautions shall be observed. They are applicable to any lifting and hoisting operation and start with the Lifting supervisor chairing a pre job meeting, a toolbox talk.

All personnel assigned to the lifting and hoisting operation shall attend this toolbox talk.

The Lifting supervisor ensures that all personnel involved in the lifting and hoisting operations fully understand the Task risk assessment/JHA, the lifting and hoisting plan and all needed control measures to carry out the operations safely.

All personnel shall have the opportunity to review the findings of the risk assessment and the details of the lifting and hoisting plan to ensure that everyone clearly understands and agrees with the methods and control measures to be used.

Application of the “10 questions for a safe lift” to the lifting and hoisting operation shall be covered during the toolbox talk.

There shall be an agreed method of communication between crane operators and riggers.

9.1.7 Operation Area

All personnel and third parties shall be kept out of any area where they might be struck by a load or lifting and hoisting equipment. Hard or soft barricades shall be utilised for areas falling within the vicinities of the lift-off, laydown, lift path areas, as well as the crane tail swinging radius if applicable.

The work area shall be closed off, to prevent people crushing or caught between by the load or lifting and hoisting equipment.

Entrance to the closed area is prohibited without permission of the lifting and hoisting operator or signaller/banksman.

9.1.8 Evacuation and emergency response

Personnel involved in the lifting and hoisting operation shall always have an escape route in case of an unexpected movement of the load or the equipment.

Evacuation and emergency response shall be in place, and shall include:

- Efficient evacuation of personnel
- Emergency response planning
- Limiting exposure to essential personnel only



9.1.9 Reacting to changing in lift plan

In any case where actual information presented at lifting site does not tally with or deviate from the Lifting Plan, any stakeholder in the Lifting Operation has the right to cease further progress of the Lifting Operation until the plan is reviewed and approved according to the operation's requirements.

Note: Never deviate from the approved Lifting Plan without another full review and final approval by the responsible persons who approved the original Lifting Plan

9.2 Execution

Lifting shall not commence unless all risks have been mitigated / reduced to ALARP. Lifting operations shall be performed in strict accordance with the approved lift plan.

The appropriate rated capacity (Load) charts for Lifting Appliances configuration in use shall be available and visible to the operator in case RCI/RCL is not available.

Load to be lifted shall be confirmed to be free to lift and within the rated capacity of the Lifting appliance and attached by means of suitable Lifting Accessories.

The Operator of the Lifting appliance shall not leave the operating controls while load is suspended and shall always obey an emergency stop signal, irrespective of who gives it.

Following controls shall be considered in all lifting activities:

- During operation, the lifting appliance shall not be left unattended at anytime
- The lifting supervisor shall obtain information on wind conditions prior to start and during lifting operation
- The lifting supervisor shall ensure that the adequacy of ground or any means of support, can sustain loads imposed by the lifting machinery
- Side loads shall be avoided
- Point loads through the outrigger / stabilizer, beams and jack pads shall be spread over an enough area to support the outrigger pad and to prevent the lifting machinery overturning or becoming unstable
- While in transit the boom shall be retracted and carried in line with the direction of motion and superstructure secured against rotation (or the boom placed in a boom rack mounted on the carrier)
- The empty hook shall be lashed or otherwise restrained so that it cannot swing freely
- If the lifting machinery has a telescopic boom it shall be set to the fully retracted position
- Counterweights shall be properly secured
- The lifting appliance shall not be used for dragging or pulling a load
- Conducting a trail lift to ensure stability and no overloading.

9.3 Outriggers / Stabilizers

9.3.1 General

Most wheeled lifting appliances are equipped with hydraulically operated outriggers or stabilizers, which shall be deployed correctly in accordance with manufacturer's instructions and relevant load chart. Prior to lifting or extending the boom all outriggers shall be deployed fully and equally prior to lifting as part of lifting machinery set up



9.3.2 Partially extended outriggers

In general, partial extension of outrigger is discouraged. However, in some special circumstances, some lifting appliances can lift loads with partially extended outriggers. The manufacturer's load charts, and other requirements shall be strictly adhered.

Use of partially extended outriggers shall be carefully planned and controlled.

9.3.3 Support arrangements for outriggers and stable subsoil

When siting a lifting machinery, point loads through the jack pads shall be spread over mats (mats shall be suitably designed for the purpose) with a sufficient area to support the outrigger pad and to prevent the lifting machinery overturning or becoming unstable, said that ground-bearing pressure shall be less than Ground bearing capacity in all circumstances.

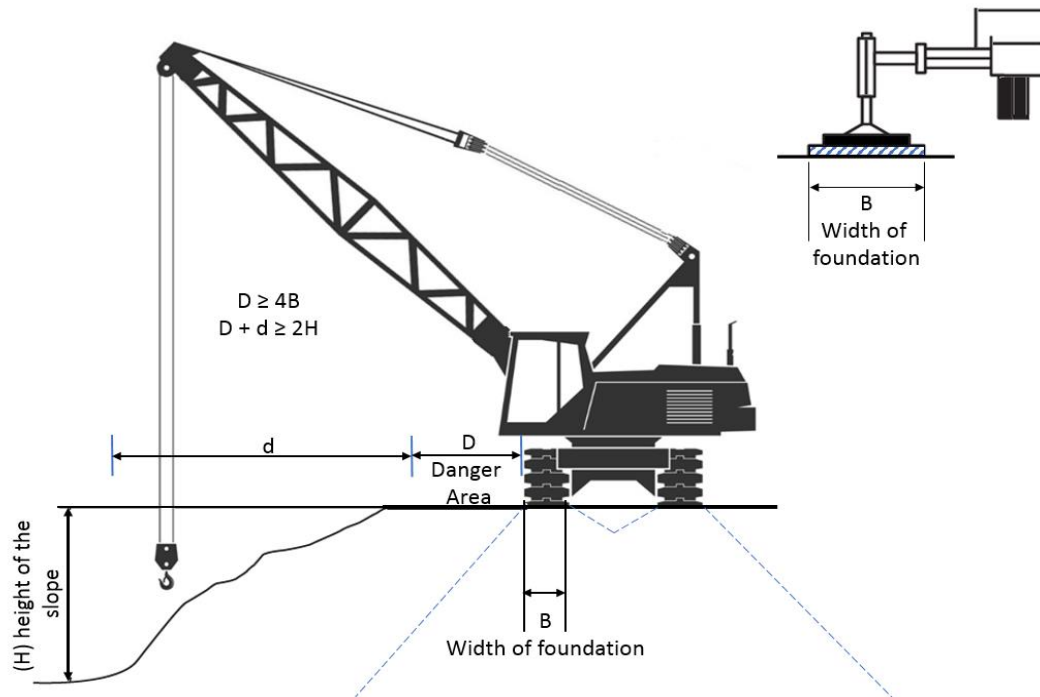
The operator shall not place any packing material on an uneven surface that could cause the packing to excessively distort or fail.

The subsoil must be sufficiently stable to withstand the expected axle loads and ground bearing pressure from the outriggers. Ground bearing pressure can be decreased through the application of larger mats.

When there is no specific information available about the subsoil structure, the maximum allowable surface pressure shall not exceed 10 tons/m² under all circumstances.

9.3.4 Safe distance from slopes

The pressure of the outrigger mat can be considered to pass into the ground at an angle of 45° from the outside edges, so that the distance between the edge of the outrigger mat and the toe of an unsupported excavation shall always be greater than the depth of the excavation. Please refer to Figure 1: Safe distance from slopes for more details





Note: $(D + d)$ shall be $\geq 2H$ or $D \geq 4B$.

The appointed person shall seek expert advice if there is any doubt concerning this.

Figure 1: Safe distance from slopes

9.3.5 Exclusion Zones

- A lift shall not be permitted unless a defined Exclusion Zone which prevents access to non-essential personnel is in place
- Personnel inside the Exclusion Zone shall avoid Proximity Hazards and any area of high risk (e.g. between the load and a heavy or immovable object)
- Lift team personnel inside the Exclusion Zone, shall keep themselves and others out of unsafe positions (e.g. areas under a load, areas where they may be injured by a dropped object or a shifting load, between loads, walls, bulk heads or heavy or immovable objects)
- Exclusion Zones shall be sized based on risk.

9.4 Assembly and De-assembly of Mobile Hydraulic, Crawler Cranes & Tower Cranes.

The Assembly and De-Assembly of cranes is correctly classified as "High-Risk Activity".

Assembly and De-Assembly present many challenges and generate many hazards and associated risks. During these phases of lifting operation, extreme caution and vigilance is required. Much heavy work and working at height is required, particularly where larger capacity cranes are in use. Careful documented planning of Hazard and Risk Analysis is required.

De-assembly also brings the added factors of rushing at the end of a lift to get clear off the site, equally after a lift is complete and in many cases the crane operator is left to his own devices and alone to

Complete the task, folding up the Fly – Jib on a small hydraulic is every bit as dangerous as taking of the luffer on a large crawler. Whilst all phases of a lifting operation require focus, vigilance, monitoring and control, the elements of Assembly and De-Assembly are very easily overlooked and taken for granted. Appointed Persons/ Lift Supervisors shall ensure that the lifting team is alert and familiar with all hazards, associated risks and implemented control measures. Once the assembly is completed the crane shall be thorough examined followed by performance test at SWL.

Note: Manufacture instruction of Assembly and De-assembly shall be strictly followed.

9.5 Use of tag lines

- The lifting appliance operator shall assess and approve the justification of using one or more tag line(s).
- It shall only be approved where there is a compelling requirement to push/pull the load for accurate placement or load may spin or swing. And the taglines shall be assessed as lower risk alternative to avoid manual handling into position.
- The length of the tag line shall be fit to use given the characteristics of the hoisting operation and at least long enough to keep persons clear from the dangers of the load, equipment or other hazards. Prefer ratio to height and length is 1:2.
- Taglines preferably they should be 100% of a polyester braided
- The tag line shall be attached to the load only and not to the lifting and hoisting accessories.



- Hold the tag line securely, but never wrap the line around any part of your body or any fixed point.
- If several tag lines are necessary, additional personnel can be involved in the operation as slinger.
- Tag lines shall be used to keep control of a load, not to gain control over a load.

9.6 Accomplishing lifting and hoisting operations

After the operation is accomplished, any barriers shall be removed, and the area made tidy.

9.7 Specific requirement for rigging.

- UNF thread eye bolts shall not be used for lifting
- Stainless steel shackle is prohibited for lifting purpose
- Shur- lock hooks shall not be used directly to the pipe or plate
- Attachments for turnbuckles for use in pipe hanger applications are excluded

10 Specific requirement for Powered Industrial Trucks including Forklift and Tele-handler

10.1 Operations

Powered Industrial Trucks including Forklift Trucks shall be operated according to applicable Government requirements and manufacturers' instructions.

10.1.1 The Operator shall:

- Drive at speeds appropriate to the existing conditions (space, load, lighting, surface conditions, etc.) and at or below posted limits
- Keep arms or legs inside the operating compartment during Operations
- Do Not start or operate the truck or any of its attachments from any place other than from the Operators position.
- Ensure other personnel are not in the swing radius prior to performing turning manoeuvres
- Sound the horn when approaching cross aisles, doorways and other locations where pedestrians shall step into the path of truck travel
- Verify enough headroom under overhead installations, lights, wiring, pipes, sprinkler systems etc.
- Wear seat belts while driving, if applicable.

10.1.2 General requirement

- A slinger and signaller shall be present all time.
- Road humps and rough or soft surfaces are to be avoided.
- Movement with loads in excessively raised positions shall not be carried out to avoid the danger of toppling, especially on uneven surfaces and while cornering.
- Shall only be used for loads, which can be carried safely on the forks or attachments fitted.



- Long tubes shall be carried using appropriate OEM approved attachments. Loads shall not be suspended from forks by means of slings.
- Authorized personnel shall only operate powered industrial trucks.
- Appliances shall not be loaded beyond its rated load (capacity).
- Trucks shall not be driven up to anyone standing in front of an object.
- Only approved industrial trucks shall be used in areas classified as hazardous locations.
- Driving rough terrain FLT's on public roads shall be kept to a minimum. When public road travel is necessary, fork arms shall be removed, folded or protected in some way so that they do not present a hazard to other road users. Where this is not possible, forks shall be painted or otherwise made highly visible.

Note: Powered Industrial Trucks including Forklift and Tele-handler shall have a documented risk assessment.

11 Lifting of personnel

The equipment used for lifting personnel shall be specifically designed for personnel lift purpose (i.e. Mobile Elevator Work Platform) and shall be complied with EN280 and certified. It shall not be used for any other purposes and be supported by thorough risk assessment

- Prior to starting any Lifting Personal Operation, minor variations shall be documented to take account of current conditions (e.g.) wind speeds, wave height, position of people and deck layout).
- All involved personnel shall be qualified and understand the lift plan and the risks involved.
- Environmental and other limits for personnel lifts shall be set out in the lift plan with clarity on where they differ from limits for other lifting.
- In case of any changes in job scope or conditions, the job shall be made safe and stopped, risks re-assessed and a pre-job meeting executed before the job is restarted. Examples of such changes include operating/weather conditions, day or night operations or changes in personnel or appliances involved.
- Personnel lifts shall only be conducted where there is line of sight (full visibility) between the appliance's operator and signaller, and between the signaller and the person being lifted.

11.1 Mobile Elevator Work Platforms (MEWP)

11.1.1 Operations

Personnel lifting devices and mobile aerial platforms shall be operated according to applicable Government requirements and manufacturers' instructions. Personnel shall:

- Keep all parts of the body, tools, and components inside the work platform periphery during raising, lowering, and travelling operations.
- Hold onto a moving platform using both hands.
- Secure tools and other objects in canvas bags or by other methods so that both hands are free and do not present a snagging hazard. Alternate methods of tool delivery beside personnel lifting devices shall be investigated.
- Wear fall protection with a lanyard attached to an authorized lanyard anchorage point. Attach only one (1) lanyard per lanyard anchorage point.
- Detailed technical operating specifications describing personnel lifting device operation,



- emergency steps, communication requirements, and special requirements shall be prepared.
- Personnel lifting device or mobile aerial platforms shall not be loaded beyond its rated load (capacity).
- Consideration shall be given to prevailing environmental conditions (e.g. wind as indicated by manufacturer), as well as aspects of the device (e.g. sail area) before commencing operations.
- Stow boom and shut off all power before leaving machine.
- Do not place boom or platform against any structure to steady the platform or to support the structure.

11.1.2 Additional requirements shall be followed for MEWPs:

- Personnel Platforms/Carriers shall not be elevated whilst on a sloping, uneven, or soft surface.
- Personnel shall not be driven with the platform elevated
- Before driving on floors, bridges, trucks, and other surfaces, check allowable capacity of the surfaces.
- Never exceed the maximum platform capacity. Distribute loads evenly on platform floor
- Do not raise the platform or drive from an elevated position unless the machine is on firm, level surfaces and evenly supported.
- Do not push or pull any object with the boom.
- Never attempt to use the machine as a crane. Do not tie-off machine to any adjacent structure.
- Do not operate the machine when wind conditions exceed 12.8 m/s (24 Knots) or as prescribed by manufacturer, local legislation and or specification.
- Do not increase the platform size with unauthorized deck extensions or attachments.
- If boom assembly or platform is in a position that one or more wheels are off the ground, all persons shall be removed before attempting to stabilize the machine.
- All operating and ground personnel shall wear headgear.
- Check work area for clearances overhead, on sides, and bottom of platform when lifting or lowering platform, and driving.
- During operation, keep all body parts inside platform railing.
- Use the boom functions, not the drive function, to position the platform close to obstacles
- Limit travel speed according to conditions of ground surface, congestion, visibility, slope, location of personnel, and other factors, which shall cause collision or injury to personnel
- Exercise extreme caution always to prevent obstacles from striking or interfering with operating controls and persons in the platform
- Position barricades on floor if necessary.
- Ensure the emergency lowering mechanism is functioning.

Note: All MEWPs operations shall have a documented risk assessment, refer to appendix 5.

11.2 Man Riding Winches

The man-riding winch shall be certified for such hoisting, clearly marked (for example: “dedicated for man riding”) and never be used for any other purpose. Man riding winches shall be OEM approved and used under the PTW, specific TRA and JHA. In addition, shall have the following features and settings:



- Shall be restricted to 150Kg.
- A communicate with all involved parties during operation.
- Shall have two brakes.
- Shall have limiting switches for High and Low levels.
- Shall not exceed monkey board level.
- No freefall system.
- Shall have emergency lowering system
- Shall have a valid inspection certificate.

**Note: 1. All other operations shall be ceased during the Man riding winch operation.
The winch shall be operated by a competent person only.
2. All man riding winches operations shall have a documented risk assessment.**

11.3 Hoisting personnel with a crane, using a basket

Hoisting personnel with a crane, using a suspended basket shall only occur in exceptional circumstances, e.g. for rescue purposes or there is no other alternative to access. It shall be specifically approved by the COMPANY operation manager in writing and supported by thorough risk assessment, Job Hazard analyses.

Lifting or lowering personnel shall be rated as non-routine High-Rate. The plan shall be approved by the COMPANY lifting engineer prior to commencement of the lifting operation and any deviation requirement identified from the plan, shall also be approved by the COMPANY lifting Engineer.

A rescue plan shall be prepared for all personnel lifts as part of lift plan. All appliances required to implement the rescue plan shall be readily available prior to and during the lift. Note that, rescue operations can introduce their own hazards; therefore, planning and execution of rescue exercises requires particular care and attention including additional risk assessments. A test lift without personnel shall be carried out.

11.3.1 General requirement

- Suspended baskets are only to be used in exceptional circumstances.
- Lifting of Personnel shall only be conducted within daylight hours, unless approved by the operation manager in consultation with the Lifting Engineer.
- Lifting of personnel regardless of lift environment shall be considered as a high-risk operation and be categorized as complex lift high rate.
- Rescue plan shall be developed, implemented and effectively communicated.
- Roles and responsibilities are assigned and coordinated.
- Radio communication shall be established prior to commencement of lifting operations.
- Wind speed shall not exceed 7 m/s.

11.3.2 Crane shall be

- Meet the requirement of EN: 13000.
- Meet the requirement of BS: 7121-3, sec 20.2, Raising or lowering of personnel.
- Crane shall have valid inspection certificate of at least six months.
- Brakes shall apply automatically when the driving power supply or the power supply to the control circuit is interrupted in any way (e.g. emergency stop) and stop the man basket within a distance of 0.1m.
- Brakes shall be designed and manufactured in such a manner as to ensure smooth application so that the man basket is not subject to any dangerous stresses even under emergency conditions.



- Crane is fitted with two distinct mechanisms for preventing the load from falling, one of which shall be self-acting/fail safe. Any free-fall possibility shall be locked out.
- Wire rope and termination shall be in accordance with EN 13411-6, non-rotational type only.
- Pressure limiting valve(s) shall be fitted in every hydraulic circuit to provide protection against excess of pressure.
- Where two cylinders operate in parallel, a valve system shall be provided to ensure that in the event of loss of pressure to one cylinder the other cylinder shall be protected against overload.
- The maximum operating speed of man baskets shall not exceed 0.5 m/s.
- The crane shall have an RCI and RCL
- The crane shall have an Anemometer
- The crane shall have out rigger positioning system
- The crane shall be fitted with an anemometer or other device to monitor in-service wind speeds.

11.3.3 Crane Operator shall

- Be competent for the task and certified to a standard recognized by the Lifting Engineer.
- Check prevailing weather conditions, ((e.g.), wind speed, sea-state) to conform to criteria listed in the specification's / lift plan.
- Perform a trial lift without personnel prior to the actual lift.
- Perform a pre-use Inspection of the crane prior to the Lifting Operation.

11.3.4 Passengers being lifted shall

- Be briefed clearly by the lifting supervisor.
- Have been trained and / or have experience of personnel lifting.

11.3.5 Basket shall be:

- Suitably designed to a recognized standard.
- Constructed and certified for the purpose of personnel lifting.
- Marked with a SWL, that it is suitable for personnel lifting and the maximum number of passengers Securely attached to the crane, (e.g.), by safety pin, four-part shackle, positive lock hook).
- Fitted with internal handrails to prevent hands / fingers being trapped if the basket swings against an obstruction.
- Fitted with a roof to protect personnel, if there is a risk of falling objects.
- Fitted with slip resistant floor.
- Fitted with internal anchor points for safety harnesses Fitted with inwardly opening doors and have a locking mechanism to prevent inadvertent opening.
- OEM approved.

11.4 Non-integrated working platforms

Non-integrated working platforms attached to the lifting appliances are not permitted under any circumstance. All integrated working platforms require COMPANY review and approval.



12 Specific Requirements for Execution of Lifting Operations

12.1 Operating Near Overhead Electric Power Lines and Cables

If work is to take place within 15 meters of a live overhead line, safety barriers shall be considered. The absolute minimum horizontal distance of the safety barriers from the line shall be 6 meters.

In general, the lifting supervisor shall ensure that the crane does not operate within 15 meters plus the maximum achievable boom length, measured horizontally, for overhead lines on steel towers

Table 2: Minimum Safe Approach Distances (M.S.A.D) shall be used for minimum safety clearances and shall be maintained under all circumstances from live conductors.

Voltage Ranges	Minimum Safe Approach Distances Meters
For 132kV Portal designed line	3.5 meters
For 132kV Steel Tower line	3.5 meters
For 66kV Portal designed line	3.0 meters
For 33kV lines and below	3.0 meters

Table 2: Minimum Safe Approach Distances (M.S.A.D)

In the event the overhead line has longer than normal span lengths, or if work could take place in exceptionally windy conditions, then these clearances may need to be increased at the discretion of the lifting supervisor. For more details, refer to SP-1242: Activities within vicinity of overhead power lines.

12.2 Operating Directly Underneath Overhead Power Lines

Where possible overhead power lines shall be made dead when work is to be carried out beneath them. If this is not practicable, then strict precautions shall be enforced whilst work is in progress.

The Area Operations Electrical representative who shall ensure that a minimum vertical safety clearance of 3.5 meters is maintained always shall closely supervise the safety precautions for such work. For more details, refer to SP-1242: Activities within vicinity of overhead power lines.

12.3 Night operations

Generally, Night lift operation is discouraged and following precautions shall be considered:

- All lifts at night shall be considered as non-routine and approved by a lifting engineer.
- Adequate lighting shall be ensured.
- Escapes route shall be clearly illuminated.
- Emergency lighting as a backup shall be available.
- Assembly point shall be clear and defined.
- Signalling/communication arrangements shall be reviewed and agreed.

12.4 Lifting Over Live Plant

Lifting over live plant is defined as a complex lifting operation, where there is a risk of the load, lifting appliances and/or lifting accessories affecting, damaging and/or rupturing live plant. In



addition, live plant is defined as equipment containing hazardous, pressurized, energized or strategic resource, for example: pipes or vessels containing hydrocarbons, electrical cables or primary power generation units such as turbines and generators and their exhaust systems. Following precautions shall be considered:

- Lifting over live plant shall not be carried out unless all risks have been documented and mitigated/reduced to ALARP and it has been established that there are no other feasible options
- All lifts executed over live plant shall have an operational contingency plan documenting how to control the effects of any loss of containment, fires, explosion, electrocution, loss of production, environmental contamination etc.
- Defined exclusion zones shall be determined.

12.5 Single crane dual hooks operation

Some single cranes are designed to lift a load using both the main and auxiliary winches. Single crane multiple winch lifts can be undertaken on these cranes in accordance with the manufacturer's instructions. This can occur for example, to rotate a prefabricated concrete panel into its vertical position from a horizontal storage or transport position by using two hoist ropes. Even though the concrete panel will be suspended by two hoist ropes, each rope usually needs to support more than 50 per cent of the load during the rotation and one rope will have to support the full weight. Therefore unless each hoist is capable of supporting the full load it is important to use the main hoist to support the full load. The actual load to be carried by each winch and rope should be calculated and documented by a competent person before the lift commences. Where a single crane is used for mid-air rotation you should:

- use a crane designed and manufactured for simultaneous multiple winch use
- follow the crane manufacturer's instructions
- if needed, reconfigured the crane before it can be used in this way
- make sure the main winch and auxiliary winch drives are independent
- not exceed the rigging maximum design fleet angle
- rotate as near as possible in line with the plane of the boom to prevent side loading the sheaves
- monitor the load on the main and auxiliary winches separately and simultaneously to avoid overloading either rope and to make sure the combined load of both ropes does not exceed the rated capacity
- not exceed by more than 10 degrees, or as determined by the manufacturer or a competent person, the included angle between the main hoist rope and auxiliary hoist rope unless otherwise specified by the manufacturer, and
- rotate with enough clearance to make sure the load does not strike the ground, crane or other objects.

12.6 Weather conditions

The effects of weather shall be given careful consideration during planning. It shall be clearly specified in the risk assessment and shall be carefully monitored during the lifting operation.

12.6.1 Visibility

Suitable means of communication shall be provided to ensure the safe operation during poor visibility. In extreme conditions, the lifting operations shall be stopped until there is enough improvement in visibility to enable operations to be resumed safely.



12.6.2 Rain

During adverse weather conditions, the appointed person shall ensure that adequate precautions are taken to avoid danger when the crane or the load is affected by rain.

12.6.3 Effects of wind

Strong winds may swing suspended loads such as (panels, formworks/shutters, etc.) out of balance and radius, making the lifting appliance unstable. In all circumstance:

- OEM maximum allowable operating wind speed shall not exceed, in case no information was provided the maximum wind allowable speed is 12.8 m/s.
- The lifting supervisor shall define the safe operating limits based on the site, equipment, load and weather conditions.

If the appliance operator considers that full control of the load cannot be maintained, he has the primary responsibility for making the decision to stop the operation, in conjunction with the lifting supervisor.

Note: Wind speed shall be continually measured/monitored during the lifting operation and the operation shall be stopped if exceeded the allowable limit.

13 Handling of tubular

The loading and unloading of pipe/cylindrical stock. Means the moving or handling of pipe, by lifting, lowering, carrying, holding, or restraining. The movement of pipe may be hazardous, and the level of hazard depends on the type of pipe being handled, what the task is, and what the conditions are at the workplace or work site. The location of the loading or unloading may present unique challenges that shall be evaluated and planned prior to the activity.

Executer party is responsible to select the right means to lift, handle and transport tubular. All controls i.e. lift plan, risk assessment... etc. shall be in place prior any operation.

Key elements and best practices for the safe operation of slinging tubular or tubular bundles are:

13.1 Using attachment:

Attachment shall be:

- OEM approved.
- Having a valid inspection certificate.
- With sufficient size and capacity for intended task.

13.2 Using forks

Tubulars shall be properly secured during forklift movement, except if:

- Single pipe or identical pipes (same diameter and length) in a single layer.
- The forks spacing cover 50% of the pipe length (25% from the ends of the pipe).
- The ground is compacted and even.
- Speed bellow 5 Km/h.
- The area is clear.
- Proper supervision.

Note: It is the rigger's responsibility to identify the appropriate rigging to be used for the lift based on the weight and length of the pipe.



13.3 Using hooks:

- Slings shall be placed at equal distance (approximately 25% of total length) from the ends of the load. They shall be double wrapped and choked around the tubular either when using steel or webbing sling.
- Only tubulars of the same diameter or size and about the same length shall be bundled together.
- Whilst loading, consideration shall be given to the installation discharging sequence
- Ensure thread protectors and end caps are securely fastened.
- Slings shall not cross under the load to avoid damage to the sling.
- The inside angle of the choke shall not exceed 120 degree.
- Care shall be taken to ensure that the chocking eyes are placed on the same side of the tubes to avoid twisting of tubes if chocked from opposite directions.
- Prior to making any lifts, the release of rigging shall be considered.
- Precautions are required to prevent personnel from being trapped between tubular
- If taglines are used, signaller shall ensure that the tag lines are made of nonconductive material.

14 Movement & security of cargo during lifting operation

Contracting companies must ensure that there is a system in place to ensure the safe movement & security of cargo during transportation shall be incorporated, to include:

- Managing cargo based on its type or contents designation for example dangerous goods.
- Security of cargo [for example positioning of loads, method of securing, safety factors, load weights]
- Potential for movement/dropping of loads for example modular trailer operations.
- Verification checks before loading/unloading.
- Method of slinging & lifting loads
- Methods & types of cargo carrying units for example cargo carrying units, portable offshore units, pallets, baskets.

15 Leaving the lifting machinery unattended

The lifting machinery operator shall always be present at the controls when a load is associated to a lifting machinery. Lifting machineries shall not be left unattended, at any times.

Before the operator leaves the machine, he shall ensure:

- All loads are removed from the lifting attachment.
- The power supplies to all motions are switched off or the engine stopped.
- Appropriate motion brakes and locks are applied to bring the machine in a safe condition and place shocks where required.
- The ignition key and any other keys are removed from the lifting machinery.

16 Contract lifting operations

Before entering into a contract, the employing organization shall confirm that contractor has the necessary competence and capability to carry out the work.



17 Drilling and rig move activities

Any lifting activities related to drilling operation or rig move shall have approved lift plans in place. The lift plans shall be approved by the company and subjected to one-year approval.

18 Learning and Record

After completing the lifting operation, everyone involved in the lift shall have the opportunity to discuss and make improvements to the Lift Plan. Any learning points noted on the plan shall be reviewed by a competent person and, where appropriate, action taken. Learning points shall include feedback on equipment effectiveness, lifting techniques, personnel, etc.

19 Application and Step-out

19.1 Application

This lift planning specification is applicable to all lifting operations performed by the COMPANY and its contractors. As such, this document is mandatory and shall be adhered to by all parties, involved in lifting operations.

19.2 Step-out and Approval

Any step-out from this specification shall be addressed to the COMPANY lifting function in writing.



Appendix 1, Example of Lift plan for mobile crane



Petroleum Development Oman

LIFT PLAN FOR LIFTING OPERATION

PROJECT			
ACTIVITY			
CONTARCTOR			
Lifting Category		Location / Unit No	
OBJECTIVE	To ensure safety of the personnel/ equipment/ asset involved in lifting activities		
MANPOWER	<ul style="list-style-type: none"> • Deploy competent individuals with valid competence cards • A designated lifting supervisor (person in charge PIC and banks man) 		
RESPONSIBILITIES	<p>Signaller: Co-ordinate the lifting movements and maintains radio-and/or visual communication with crane operator and persons close to the load</p> <p>Slinger: Inspect the rigging, select rigging to suit the load, install the accessories and connect/disconnect the load</p> <p>Lifting supervisor (PIC): Co-ordinate and control all aspects of lifting operations on site. (Banks man can be the lifting supervisor for routine lift). To ensure lifting operation is implementing according to the Lift plan)</p> <p>Crane Operator: Pre-use inspection of crane and rig up of the crane; operating the crane and perform the lift in a safe manner taking the signals from the Banks man / Signaller only, unless in an emergency.</p>		
LIFTING EQUIPMENT	All lifting equipment carry out the actual lifting shall have valid third-party certification as per SP2275.		

IF YOU ARE IN DOUBT – STOP THE JOB AND ASK



1. Load Details							
Total Weight		Load Dimensions		Type of Load			
Method (s) Of Communication: <input type="checkbox"/> Radio <input type="checkbox"/> Verbal <input type="checkbox"/> Hand Signals							
2. Lifting Accessories Details:				Current Color Code=			
Crane 1				Crane 2			
Qty	Description	SWL	Weight	Qty	Description	SWL	Weight
Total Rigging Weight				Total Rigging Weight			
3. Rigging method:							
Vertical Hitch <input type="checkbox"/>		Bridle Hitch with eye pads <input type="checkbox"/>		Choker Hitch <input type="checkbox"/>		Basket Hitch <input type="checkbox"/>	
4. Crane and Load Chart Details							
CRANE-1				CRANE-2			
Crane SWL				Crane SWL			
Gross Weight of Crane				Gross Weight of Crane			
Hook Block Weight				Hook Block Weight			
Required Boom Length				Required Boom Length			
Maximum Radius				Maximum Radius			
Capacity @Max Radius				Capacity @Max Radius			
Crane Utilization (%)				Crane Utilization (%)			
5. Ground Bearing Pressure (Not applicable for routine lift)							
Maximum Site Ground Bearing Capacity:							
CRANE-1				CRANE-2			
Gross Weight (Crane+Hook block+Rigging+Load)				Gross Weight (Crane + Rigging + Load)			
Out rigger spreader mat size & type				Out rigger spreader mat size & type			
Gross Weight/ Area of mat				Gross Weight/ Area of mat			
Ground Bearing Pressure				Ground Bearing Pressure			
NOTE: Ground Bearing Pressure shall not exceed the Maximum Site Ground Bearing Capacity							
6. Support document							
<ul style="list-style-type: none"> • Sketch and rigging arrangement. • Specific load chart • Task risk assessment* • Lifting crew competence cards • Lifting equipment certificates i.e. cranes and lifting gears. 							



*For Non routine operation step-by-step instruction with a specific TRA shall be attached.

10 QUESTIONS FOR A SAFE LIFT

NO	DESCRIPTION	Yes	No
01	Is everyone aware of and do they fully understand the lifting procedures?		
02	Has everyone attended the toolbox talk?		
03	Has a pre-use inspection of the Lifting Equipment been carried out and are the Lifting Accessories tagged or marked with: - Safe Working Load - A unique identification number - A valid certification date		
04	Are all safety devices working?		
05	Does everyone know the lifting supervisor of the lift?		
06	Is everyone competent and aware of his or her tasks?		
07	Is there a current Lift Plan and risk assessment and does everybody understand the job and precautions?		
08	Is everyone aware about environmental limits (e.g. maximum permissible wind speed) for the lift?		
09	Is the lift area controlled and is the lifting path clear?		
10	Are signalling methods and communication agreed and understood?		

Note: Never start any lifting operation until all concerned have been briefed in a Pre-Start Meeting, ensuring that they understand their role and responsibilities and that they have signed onto the Permit-to-Work or record of attendance at the Pre-Start Meeting.

Approval				
	Name	Signature	Date	Validity
Lift plan preparer				
Reviewed / Approved by				

Note: Generic / Routine lift plan can be reviewed and approved by contractor qualified appointed person.



Appendix 2 Hazard and Effects Management Process (HEMP)

<ul style="list-style-type: none"> Defective lifting equipment 	<ul style="list-style-type: none"> Injury to personnel Damage to equipment 	4	C	M	<ul style="list-style-type: none"> Ensure lifting equipment (appliances and accessories) has valid certification Ensure that lifting accessories are correctly colour coded Inspect equipment prior to use Ensure equipment is regularly maintained Follow manufacturer's instructions 	L	<ul style="list-style-type: none"> Emergency escape route First aid Emergency response
<ul style="list-style-type: none"> Incorrect use of lifting equipment 	<ul style="list-style-type: none"> Injury to personnel Damage to equipment 	4	C	M	<ul style="list-style-type: none"> Slings, Signaller, lifting supervisor, crane operator etc. shall be competent and qualified 	L	<ul style="list-style-type: none"> Emergency escape route First aid Emergency response
<ul style="list-style-type: none"> Abrupt movements 	<ul style="list-style-type: none"> Injury to personnel Damage to equipment 	4	B	M	<ul style="list-style-type: none"> Load to be lifted/lowered carefully Watch out for objects in the way of the load Operator to follow the signals of the Signaller 	L	<ul style="list-style-type: none"> Emergency escape route First aid Emergency response
<ul style="list-style-type: none"> Unstable, uneven ground 	<ul style="list-style-type: none"> Injury to personnel Damage to equipment 	4	C	M	<ul style="list-style-type: none"> Position crane on stable and even ground Ensure the outriggers are set correctly Use mats under the outriggers to distribute ground pressure Keep enough distance from the edge of trenches Ensure Slings, Signaller, lifting supervisor, crane operator is qualified 	L	<ul style="list-style-type: none"> Emergency escape route First aid Emergency response
<ul style="list-style-type: none"> Improper handling of load 	<ul style="list-style-type: none"> Injury to personnel Damage to equipment 	3	C	M	<ul style="list-style-type: none"> Check suitability of crane position in relation to radius, boom length and load chart Make sure load down area is safe In case of loading a vehicle ensure its position is suitable Ensure correct and certified rigging is used Use tag lines to avoid swinging of the load Lift the load carefully 10-20cm before proceeding Ensure Slings, Signaller, lifting supervisor, crane operator is qualified/certified Ensure crane operator will follow signals of Signaller Direct supervision 	L	<ul style="list-style-type: none"> Emergency escape route First aid Emergency response



<ul style="list-style-type: none"> Suspended load 	<ul style="list-style-type: none"> Injury to personnel / fatality Damage to equipment 	4	C	M	<ul style="list-style-type: none"> Personnel never to be allowed under suspended load or within swinging radius No tools, food or drinks to be allowed near moving crane parts Use tag lines to avoid swinging of the load Cordon off area Restrict area to and limit number of authorized persons Crane operator shall not leave controls unattended Never leave load unattended Direct supervision 	L	<ul style="list-style-type: none"> Emergency escape route First aid Emergency response
<ul style="list-style-type: none"> Overloading crane 	<ul style="list-style-type: none"> Injury to personnel / fatality Damage to equipment 	4	C	M	<ul style="list-style-type: none"> Ensure correct capacity crane is selected Ensure load computer is working correctly Ensure load charts and boom angle indicator are available SWL, inspection and next due date are displayed prominently on the boom Load only to be lifted vertically Load not to be dragged Crane not to be operated on a slope Do not lift loads with unknown weight and centre of gravity Use correct and certified rigging (correct colour coding) Do not override (load) safety devices Inspect equipment prior to use Strictly adhere to lift plan Direct supervision 	L	<ul style="list-style-type: none"> Emergency escape route First aid Emergency response
<ul style="list-style-type: none"> Inadequate workspace / Congested area 	<ul style="list-style-type: none"> Injury to personnel / fatality Damage to equipment 	4	C	M	<ul style="list-style-type: none"> Plan the work to avoid congestion and conflicting tasks in that area Ensure adequate space is available to work and manoeuvre crane and vehicle Parking not to be allowed in the area Provide proper storage area Maintain good house keeping Use only qualified/certified Slings, Signaller, lifting supervisor, crane operator Direct supervision 	L	<ul style="list-style-type: none"> Emergency escape route First aid Emergency response
<ul style="list-style-type: none"> Insufficient communication 	<ul style="list-style-type: none"> Injury to personnel / fatality Damage to equipment 	4	C	M	<ul style="list-style-type: none"> Use only qualified/certified Slings, Signaller, lifting supervisor, crane operator Ensure it is clear who is the lifting supervisor Ensure Signaller is easily recognized by wearing a coloured vest Ensure Signaller signals are 	L	<ul style="list-style-type: none"> Emergency escape route First aid Emergency response



					understood and followed • Restrict area to and limit number of authorized persons		
• Bad weather	Injury to personnel Damage to equipment	3	C	M	• Follow strictly crane manufacturers requirements for wind speed • Stop work	L	• Emergency escape route • First aid • Emergency response



Appendix 3, Example of lift plan for FLK and Tele-handler



Petroleum Development Oman L.L.C.

METHOD STATEMENT FOR TELEHANDLER / FORKLIFT OPERATION

LOCATION			
ACTIVITY			
CONTARCTOR			
CAPACITY		With attachment?	YES / NO
TOTAL WEIGHT		Are attachments certified?	YES / NO
OBJECTIVE	To ensure safety of the personnel/ equipment/ asset involved in lifting activities		
MANPOWER	<ul style="list-style-type: none"> Deploy individuals with valid certifications (lifting appliance operator, lifting supervisor & Slingers) A designated lifting supervisor (person in charge PIC and Signaller) 		
RESPONSIBILITIES	<p>Lifting supervisor (PIC): Co-ordinate and control all aspects of lifting operations on site. (Signaller can be the lifting supervisor if he is competent)</p> <p>Operator: Pre-use inspection of lifting appliance, operating the lifting appliance and perform the lift in a safe manner taking the signals from the Signaller only, unless in an emergency.</p> <p>Slinger and Signaller: Co-ordinate and control all aspects of lifting operations on site. Co-ordinate the lifting movements and maintains communication Signaller with the operator</p>		
EQUIPMENT	<ul style="list-style-type: none"> Lifting Appliances and lifting accessories which carries out the actual lifting function and shall have a valid third-party certification only as per SP2275 		



10 QUESTIONS FOR A SAFE LIFT

NO	DESCRIPTION	Yes	No
01	Is everyone aware of and do they fully understand the lifting procedures?		
02	Has everyone attended the toolbox talk?		
03	Has a pre-use inspection of the forklift and Tele handler been carried out and marked with? - Safe Working Load - A unique identification number - Inspection date		
04	Are all safety devices working (if applicable)?		
05	Does everyone know the supervisor of the lift?		
06	Is everyone competent and aware of his or her tasks?		
07	Is there a current Lift Plan and risk assessment and does everybody understand the job and precautions?		
08	Is everyone aware about environmental limits for the lift?		
09	Is the lift area controlled and is the lifting path clear?		
10	Are signalling methods and communication agreed and understood?		

Attachment	<ul style="list-style-type: none"> • Sketch/calculation of lifting plan mentioning load, radius, boom length and capacity of tele handler. • Load chart of tele handler • Risk assessment (Specific HEMP) • Equipment certificates • Lifting personnel permits
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Note: Never start any lifting operation until all concerned have been briefed in a Pre-Start Meeting, ensuring that they understand their role and responsibilities and that they have signed onto the Permit-to-Work or record of attendance at the Pre-Start Meeting.

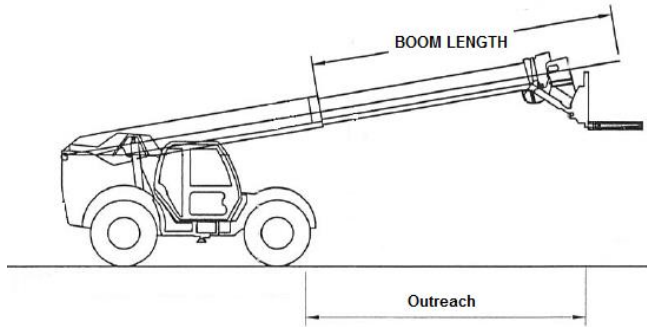
Acknowledgment:

We acknowledge that have verified this method statement against the activities stated in this statement without any deviation. This method statement will be discussed during the (TBT) discussion.

	Name	Signature	Date
Prepared by			
Approved by			



Calculation drawing (for Tele-handler only)



NO	Description	Unit	Value
01	Total weight (Load + Attachments)	tonnes	
02	Main boom length	m	
03	Outreach	m	
04	Net capacity of tele handler	tonnes	
05	% of chart capacity used	%	



Appendix 4, Example Risk Assessment for Tele-handler and Forklift operation

Hazards	EFFECT	CONTROL MEASURES	Action by
Fire	Injury to Personnel Damage to equipment	<ul style="list-style-type: none"> • Portable firefighting equipment and signs • Fire doors to avoid fire propagation • Signs and instruction on fire action to be taken • Fire alarm • Smoking only in designated areas 	
Electrical Systems	Injury to Personnel	<ul style="list-style-type: none"> • Electrical installations and devices are maintained and in good condition • Correct selection and use of equipment • Portable Appliance Testing • Training, supervision and instruction provided to all those required to complete battery care and maintenance • Trainees always under close supervision 	
Electrical Equipment	Damage to equipment		
Chemicals	Injury to Personnel Damage to equipment	<ul style="list-style-type: none"> • PPE available and used by all those required to complete battery care and maintenance – inspected regularly for wear • PPE available for diesel re-fuelling activities or gas bottle exchange etc. • Training supervision and instruction provided to all those required to complete battery care and maintenance and diesel and gas re-fuelling where appropriate • Trainees always under close supervision 	
Manual Handling	Injury to Personnel Damage to equipment	<ul style="list-style-type: none"> • Good Housekeeping • Safe proper Storage • PPE available e.g. gloves for moving of pallets 	
Fall Hazards	Injury to Personnel Damage to equipment	<ul style="list-style-type: none"> • Firm, level ground and non-slippery surfaces • No leads, cables or goods left in pedestrian routes etc. • No climbing on equipment/loads/vehicles or unauthorised working at height • All equipment parked in designated areas • Round and unsymmetrical objects. 	
Falling objects	Injury to Personnel Damage to equipment	<ul style="list-style-type: none"> • All pallets/loads are checked periodically for security and positioning • Load storage and racking systems are checked periodically for integrity and any signs of damage • All lifting accessories are checked in accordance with local regulations and the lifting plan • Broken or unusable stock is removed and destroyed • Full supervision (Person in Charge) provided during lifts etc. • Pipes and round objects secured properly. 	



Hazards	EFFECT	CONTROL MEASURES	Action by
Vehicle Loading	Injury to Personnel Damage to equipment	<ul style="list-style-type: none">• Loads are inspected for movement during transport before restraints are removed• Road vehicle is securely parked, and driver is aware of the operation• The area is controlled• Pedestrians are kept clear	
Dust or Fumes	-Injury to Personnel -Damage to equipment	<ul style="list-style-type: none">• Adequate ventilation• Adequate PPE	
Lift Trucks	-Injury to Personnel -Damage to equipment	<ul style="list-style-type: none">• Operators are suitably trained and appropriately experienced• No equipment is used until a pre-use inspection is conducted• Key control measures are in place and adhered to• Operational areas are restricted access• Trucks are serviced annually and thoroughly examined in accordance with local regulations• Anyone in the operating area must always be authorised and wear Hi-Viz vests• No pedestrians allowed near fork truck activity• All lifts to follow the lifting plan	
Defective lifting equipment	- Injury to personnel - Damage to equipment	<ul style="list-style-type: none">• Ensure lifting equipment (appliances and accessories) has valid certification• Ensure that lifting accessories are correctly colour coded• Inspect equipment prior to use• Ensure equipment is regularly maintained• Follow manufacturer's instructions	
Incorrect use of lifting equipment	- Injury to personnel - Damage to equipment	<ul style="list-style-type: none">• Slings, Signallers, lifting supervisor, crane operator etc. shall be competent and qualified	
Abrupt movements	- Injury to personnel - Damage to equipment	<ul style="list-style-type: none">• Load to be lifted/lowered carefully• Watch out for objects in the way of the load• Operator to follow the signals of the Signaller	
Unstable, uneven ground	- Injury to personnel - Damage to equipment	<ul style="list-style-type: none">• Position crane on stable and even ground• Ensure the outriggers are set correctly• Use mats under the outriggers to distribute ground pressure• Keep enough distance from the edge of trenches• Ensure Slings, Signaller, lifting supervisor, crane operator is qualified	
Improper handling of load	- Injury to personnel	<ul style="list-style-type: none">• Check suitability of crane position in relation to radius, boom length and load chart• Make sure load down area is safe	



Hazards	EFFECT	CONTROL MEASURES	Action by
	- Damage to equipment	<ul style="list-style-type: none">• In case of loading a vehicle ensure its position is suitable• Ensure correct and certified rigging is used• Use tag lines to avoid swinging of the load• Lift the load carefully 10-20cm before proceeding• Ensure Slingers, Signaller, lifting supervisor, crane operator is qualified/certified• Ensure crane operator will follow signals of Signaller• Direct supervision	
Suspended load	- Injury to personnel / fatality - Damage to equipment	<ul style="list-style-type: none">• Personnel never to be allowed under suspended load or within swinging radius• No tools, food or drinks to be allowed near moving crane parts• Use tag lines to avoid swinging of the load• Cordon off area• Restrict area to and limit number of authorized persons• Crane operator shall not leave controls unattended• Never leave load unattended• Direct supervision	
- Inadequate workspace / Congested area	- Injury to personnel / fatality - Damage to equipment	<ul style="list-style-type: none">• Plan the work to avoid congestion and conflicting tasks in that area• Ensure adequate space is available to work and manoeuvre crane and vehicle• Parking not to be allowed in the area• Provide proper storage area• Maintain good house keeping• Use only qualified/certified Slingers, Signaller, lifting supervisor, crane operator• Direct supervision	



Appendix 5, Example Risk Assessment for MEWP

What are the hazards?	Who might be harmed?	What do you need to do about it?	Action by who?
Incompetent operator Defective equipment	Operator, Other staff members, Property	<ul style="list-style-type: none"> - Operators shall have attended a recognized operator training course and received a certificate, card or 'license', listing the categories of MEWP - In addition to formal training operators shall have familiarization training on the controls and operation of the specific make and model of MEWP they are using - Lifting appliances shall have a current valid Inspection / Test certificate. As per SP2275 - Ensure operator checks /inspection prior to use - Follow specific instructions for handling of equipment supplied by the manufacturer. - Regular inspection & maintenance of equipment. - Provision of suitable DCP / CO2 fire extinguishers in the vicinity. - Unauthorized operation of MEWP shall be Avoided - Overloading of MEWP shall be avoided. 	
Crushing, trapping, overturning of lifting equipment, impact	Operator, Other staff members, Property	<ul style="list-style-type: none"> - The platform shall be used on firm and level ground. Any temporary covers shall be strong enough to withstand the applied pressure. Localized ground features, e.g. trenches, manholes and uncompact backfill, can all lead to overturning. - MEWP to travel in stowed position. - MEWP to be used in barricaded area. - Continual observation at all times. 	
Ground conditions / MEWP stability	Operator, Other staff members, Third parties, Property	<ul style="list-style-type: none"> - MEWP to be used on stable ground only. - Plan the rout and instructs to follow - Outriggers/ stabilizer to be deployed as per manufactures specifications if available. - Outriggers/ stabilizer to be supported on purpose made or adequate timbers or plates. 	
Ejection from work platform, Arresting Falls, Trapping and crushing, Abrupt movements	Operator, another staff member in the platform	<ul style="list-style-type: none"> - Make sure the work platform is fitted with effective guard rails and toe boards - Harness with a short work restraint lanyard must be secured to a suitable manufacturer provided anchorage point within the basket. - Never lean out over the platform cage during equipment operation. 	
Falling objects	Operator, Other staff members, Third parties, Property	<ul style="list-style-type: none"> - barrier off the area around the platform so that falling tools or objects do not strike people below - No one shall be allowed to stand or enter the machine's working area. - Tools shall be secured as required. - Loose material shall be stored at proper place. 	



Falling objects	Operator, Other staff members, Third parties, Property	<ul style="list-style-type: none">- barrier off the area around the platform so that falling tools or objects do not strike people below- No one shall be allowed to stand or enter the machine's working area.- Tools shall be secured as required.- Loose material shall be stored at proper place.	
Overhead power cables /Overhead obstruction, electrocution, Exposure to Electromagnetic radiation	Operator, other staff member in the platform, property	<ul style="list-style-type: none">- Refer to SP2273/ HSE guidelines (GS6) for safe use near power cables.- Obtain OHL clearance certificate if applicable.- Continual observation	
Collision with pedestrians	Operator, Other staff members, Third parties, Property	<ul style="list-style-type: none">- MEWP to be used in controlled area.- Continual observation at all times.- Use of ground observer.	
Contact with other machines/vehicles	Operator, Other staff members, Third parties, Property	<ul style="list-style-type: none">- MEWP to be operated away from other machine movements.- Use of ground observer.- Continual observation.- Suitable traffic controls to be instituted.	
Unexpected failure of machine	Operator, Other staff members, Third parties, Property	<ul style="list-style-type: none">- Ensure daily check have been carried out.- Evidence of thorough examination within last 6 months.- Ensure machine is not overloaded (SWL)- Ensure limit switches are working correctly.- Provision of suitable DCP / CO2 fire extinguishers in the vicinity.	
Handling materials	Operator, other staff member in the platform, property	<ul style="list-style-type: none">- If used to install materials check the weight and dimensions of materials, consider any manual handling, and load distribution issues. You may need additional lifting equipment to transport materials to the work position	
Weather	Operator, other staff member in the platform, property	<ul style="list-style-type: none">- High winds can tilt platforms and make them unstable. Set a maximum safe wind speed for operation refer to manufacture specs and SP2273.- Storms and rain can also damage platforms. Inspect the platform before use after severe weather	



Appendix 6 lift plan checklist

Lift plan checklist

S. No	Description	v/ X
1.	Is the method statement covers the below?	
1.1	Are responsibilities of lifting personnel are clearly defined?	<input type="checkbox"/>
1.2	List of resources: a) Is personnel names and permit numbers included? b) Is equipment Identification/Register numbers and Model no's are indicated?	<input type="checkbox"/> <input type="checkbox"/>
1.3	Is HSE controls and safety included?	<input type="checkbox"/>
1.4	Is the sequence of lifting operation (step-by-step procedure) covered?	<input type="checkbox"/>
1.5	Are 10 questions for a safe lift included?	<input type="checkbox"/>
1.6	Is lift plan meets the requirement of as per SP2273?	<input type="checkbox"/>
1.7	Is the method statement meets the requirement SP 2275 & SP 2273?	<input type="checkbox"/>
1.8	Is the crane from PDO approved list	<input type="checkbox"/>
1.9	Are all welded lifting pad eyes/lugs NDT report is available?	<input type="checkbox"/>
2.	Is the Lift plan sketch (Auto CAD drawing preferred) with clear rigging and details?	<input type="checkbox"/>
3.	Is the Rigging calculation table filled correctly?	<input type="checkbox"/>
4.	Is the attached correct crane load chart?	<input type="checkbox"/>
5.	Are the following documents attached?	
5.1	Crane valid certificates with RAS report	<input type="checkbox"/>
5.2	Lifting accessories valid PDO approved third party certificates	<input type="checkbox"/>
5.3	Qualified Slinger & Signaller, lift supervisor, Operator(s) permits as per the above 1.2a list.	<input type="checkbox"/>
5.4	HEMP (Health & Effect Management Process)	<input type="checkbox"/>
5.5	TRA (Task Risk Assessment) specific for non-routine lift	<input type="checkbox"/>
5.6	Agreed communication (Hand/radio signals) details	<input type="checkbox"/>
5.7	Contingency / Emergency rescue plan (for critical lift)	<input type="checkbox"/>
5.8	Man riding / Night lifting as per SP2273 requirements (If applicable)	<input type="checkbox"/>
5.9	Ground bearing capacity (for critical lift).	<input type="checkbox"/>

Verified & confirmed by Name (AP)	
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Date and signature

Note: Lift plan shall be prepared according to SP2273 Specification.