Lifting and Rigging
CoW Technical Standard

Version	Date	Approver
1.0	March 31, 2024	JO EHS

Introduction

This standard defines the Control of Work Requirements for Lifting and Rigging activities.

This standard should be used in conjunction with applicable WJO Engineering Standards which contain additional technical information and specifications for planning and performing lifting operations.

Lifting and Rigging is the process by which loads are rigged, lifted, and moved using manual and/ or powered mechanical devices including but not limited to cranes, hoist, and winches.

Lifting and Rigging requirements are designed to help prevent injuries (SIF) to personnel, property damage or adverse environmental impact through the safe planning and delivery of lifting operations including the use of procedures, lift plans, inspection, and selection of lifting equipment by trained and competent personnel.

Scope

Lifting and rigging operations that are in support of diving operations, but not directly part of the diving activities, (such as project mobilization, topside movement of material or equipment, and demobilization of the diving project) fall within scope and shall comply with requirements of this standard.

Lifting and rigging activities that are directly part of commercial diving activities are out of scope of this standard, including preparation of loads to go into the water, moving materials or equipment under water, and preparation of loads to come out of the water. Such activities shall meet guidance issued by International Marine Contractors Association (IMCA) D060 in accordance with IOGP 411 recommended practices for diving operations.

Operations listed in the table below are out of scope for this standard:

Out of Scope Operations	
Drilling crown block, travelling block, and top drive operations	Fall protection and rope access equipment
Goods and personnel elevators	Manual handling
Ship anchor handling, marine towing, and routine ship operations not directly associated with loading and offloading (e.g., ship maintenance)	Lifting with Jacks (e.g., Mechanical, Hydraulic)
Tree cutting and associated movement of lumber	Vehicle maintenance lifts
Mining and earth moving	Piling machines
Commercial Diving (See IMCA D060)	

This standard does not apply to equipment that is not specifically designed for Lifting and Rigging purposes such as elevated work platforms, and forklifts/ telehandler (unless designed and configured to hoist, lower, and horizontally move a suspended load).

Requirements

The following sections provide minimum requirements for Lifting and Rigging as well as supporting guidance to clarify the intent of those requirements.

- Requirements of this Standard **shall** be met.
- Guidance in this Standard **may** be used as an aid to develop local documents that meet or exceed Control of Work (CoW) requirements. If examples are provided within guidance sections, they are not meant to represent the only acceptable means for meeting a requirement. WJO may develop or utilize other suitable methods not discussed in this document as long as the requirements are met. Implementation of guidance is not auditable.

Lift Planning

1.	**Requirement:**	**A competent person shall be engaged in assuring that all lifting operations are planned and managed.** **a. WJO shall identify individuals who are trained and competent to fill the roles identified in Appendix C and defined in Appendix F.**
2.	**Requirement:**	**Lifting operations shall be categorized based on the degree of complexity and hazards associated with the lift being performed. Lifts shall be categorized into categories 1, 2 or 3 with category 3 being the most complex. Details of the methodology for categorizing lifts and the documents required by lift category can be found in Appendices A and B respectively.**
3.	**Requirement:**	**A lift plan is required for all lift operations. The plan shall be approved by a Site Lifting Competent Person and/ or an Approved Competent Person who is competent for the category of lift being conducted.** **b. The plan shall include the elements and level of detail required by each lift category per Appendix D.** **c. WJO shall develop a review process for Category 1 generic lift plans.** **d. Generic lift plans shall not be used for Category 2 or 3 lifts.** **e. WJO shall determine if secondary approval by an Approved Competent Person is required for Category 2 lift plans.** **f. Category 3 lift plans shall include secondary approval from an Approved Competent Person (Engineer or Subject Matter Expert).** **g. Any changes to a prepared lift plan shall be approved by a person with the same, or higher, competence level as the original lift plan approver.**
	Guidance:	CoW documentation (e.g., work permits, hazard analysis, rescue plans, etc.) may constitute a lifting plan in lieu of standalone documentation, provided that all Appendix D requirements are satisfied by the CoW documentation. • A generic Lift Plan supported by an onsite risk assessment and team briefing may be used to

		satisfy the lift plan requirement for Category 1 lifts. Generic lift plans may be appropriate for multiple occurrences of similar Category 1 lifts within specified limits. • Category 2 lift plans are specific to the lift and may include technical details and drawings. • Category 3 lift plans are specific to the lift, and may include technical details, drawings, and engineering input (e.g., Site Factors and Load Factors to document load integrity and stability). For Category 1 and Category 2 repetitive or repeated lifts, previously developed lift plans may be reused if the lift is within the parameters of the plan, such as complexity, equipment, load, location, environmental considerations, and personnel involved.
4.	**Requirement:**	**While planning a lift, a hazard analysis shall be developed accordance with the Hazard Analysis CoW Technical Standard.**
	Guidance:	The hazard analysis for category 1 lifting operations may be standardized considering the hazards associated with similar lifting operations. The hazard analysis for Categories 2 and 3 lifting operations should consider the specific hazards associated with the specific lifting operation and the controls to manage those hazards. All cranes shall be used within the OEM design limits for wind speed and other factors. Note: The majority of mobile cranes experience de-rating at 30 kph
5.	**Requirement:**	**Category 2 and 3 lifting plans shall be developed in consultation with subject matter experts in the mitigation of the hazards associated with the lift, such as:** **a. Lifts involving two or more lifting appliances** **b. Subsea lifting (non-Commercial diving support)** **c. Ground conditions for setting up mobile lifting appliances** **d. Helicopter lifts** **e. Lifts from floating barges/ vessels** **f. Lifts over live process areas or sensitive process equipment (containing hydrocarbons, pressurized, or hazardous substances).**
	Guidance:	For category 2-3 lift operations, additional experts such as civil engineers, structural engineers, electrical engineers, or marine engineers may need to be consulted as part of the development of the lifting plan.

6.	**Requirement:**	**If lifting near energized overhead power lines where energy isolation is unfeasible:** **g. Lifting equipment shall maintain an approach distance of 20 feet (6 meters) of a power line if voltages are unknown, or** **h. Appendix E shall be used along with Qualified Electrical Person support for known voltage encroachment situations. Encroachment controls shall be identified in the hazard analysis if there's any potential to enter the minimum clearance distance, these shall include at least one of the following: barriers, spotter, proximity alarm, or voltage detector.**
	Guidance:	Further safe approach distances may be required for higher voltage situations, and a Qualified Electrical Person should be consulted in the planning stages of the lifting operations to confirm safe approach or Isolation of Energy.
7.	**Requirement:**	**a. Lifting and rigging equipment shall meet the following requirements:** **i. Designed and certified to meet manufacturer's specifications, WJO requirements, local jurisdictional requirements, and the requirements of applicable local industry standards** **ii. Marked for identification, documentation of inspection, and working load limits (e.g., nameplate, tag, or information plate)** **iii. Maintained according to manufacturer's specifications, industry or WJO standards, or the instructions of a Competent Person** **iv. Only be used for the purpose for which it was designed.** **v. Not modified except in consultation with the original equipment manufacturer or certified repairer following the management of change process.** **vi. Specialized and unique equipment that is manufactured by WJO may be used if designed, tested, and approved by the appropriate authority (e.g., Professional engineer (PE), Design engineer, or equivalent).**

		vii. **Non-engineered (handcrafted) equipment shall NOT be used for lifting operations.** viii. **Existing structures or process equipment used as part of the lifting operation, shall be reviewed by the Site Lifting Competent Person in consultation with a structural engineer and other subject matter experts as appropriate, and confirm that the structure or equipment is suitable to support the planned lifting operation.** **b. All lifting and rigging equipment shall be recorded in a register which is stored in a controlled location.**
8.	**Requirement:**	**Lifting and Rigging equipment shall be inspected by qualified personnel according to applicable regulations, standards, and specifications.** **a. Equipment shall be inspected before it is first put into use and then at a frequency determined by the manufacturer, industry or WJO standards, or as determined by a Competent Person if no frequency is defined.** **b. Inspections shall be recorded in a lifting equipment register and include documentation of inspection and working load limits by either color codes, tags, and/or documentation.** **c. Equipment that is rented or brought onto the location by contractors shall be clearly marked to allow identification, documentation of inspection, and working load limits, and shall be inspected, maintained, and managed to the same standards as company lifting equipment.** **d. Damaged or defective equipment shall be removed from service, clearly marked as defective, and quarantined to prevent accidental usage.**
	Guidance:	The following equipment should be included in the lifting and rigging register: stingers, wire rope slings, synthetic slings, cargo-carrying units, hooks, eyebolts, shackles, beam clamps, chain hoists, pad eyes, trolleys, personnel work platforms, marine hoisted personnel transfer device, personnel-riding work baskets, cranes, and equivalent hoisting equipment.

		Lifting equipment owned or rented by a third party and used on a WJO location should be inspected to ensure that the equipment is suitable for use. It is the responsibility of the third party to have the equipment inspected.
9.	**Requirement:**	**Cranes shall be assembled and disassembled under the direction of a competent and qualified assembly/disassembly person in accordance with manufacturer's instructions or procedure, industry standards, WJO standards, and/or accepted best practices and in compliance with applicable legal requirements.**
10.	**Requirement:**	**Mechanical lifting devices to lift personnel in a suspended personnel carrier (e.g., work basket) shall only be used if other options (such as Scaffolding, Mobile Elevated Work Platform (MEWP), etc.) are not feasible or would result in additional hazards.** **a. If mechanical means (e.g., crane with certified personnel lifting basket) are necessary for lifting of personnel, the lifting equipment shall be designed and certified for lifting personnel, and a specific personnel lift plan and hazard analysis shall be developed along with a rescue plan.**
	Guidance:	Rescue baskets are acceptable for rescuing personnel if the equipment is designed for rescue and proper pre-checks have been completed and rescue plans developed.
11.	**Requirement:**	**Lifting of personnel for transfer (for example, vessel to vessel or platform) shall require:** **a. Level 2 Hazard Analysis** **b. A specific personnel lift plan, or a dedicated lift plan with an incorporated rescue plan.** **c. Lifting equipment used for personnel handling (e.g., personnel platforms, personnel transfer devices, attachment/suspension systems, etc.) shall be certified for this use in compliance with applicable legal requirements and in accordance with WJO standards.** **d. Lifting equipment used for personnel handling must be assembled, rigged, loaded, and used in accordance with WJO standards and manufacturer instructions and in compliance with applicable legal requirements.**

		e. **Marine hoisted personnel transfer devices (e.g., Billy Pugh X904, FROG) and other personnel transfer devices must be inspected and tested in accordance with manufacturer instructions.**
12.	**Requirement:**	**Prior to starting the lifting operation:** **a. The lift crew shall review the lift plan, hazard analysis, permit to work (if required) and agree to the roles that they are undertaking and the communication methods to be used.** **b. The lifting operation shall be conducted in accordance with the lift plan and hazard analysis developed for the operation, including the number of people specified in the plan to carry out the lift safely. If conditions change or deviate from the plan, work shall be stopped, and the plan will be revised to address the conditions.** **c. A Red Zone shall be established and controlled. All non-authorized personnel are restricted from entering the Red Zone, and all personnel shall be kept clear of suspended/travelling loads and lifting equipment.** **d. The communication methods to be used by the lift team shall be agreed upon before the operations starts (radio communications/ hand signals).** **e. Routes for suspended loads shall ensure that no employee is required to work directly below a suspended load.** **i. The need for tag lines, push/ pull sticks, or other approved devices to distance crew members from the suspended loads and out of the Red Zone shall be assessed.** **ii. The use of taglines for offshore vessels backload/offload is not recommended. However, where an assessment determines the use of taglines to be necessary, such use shall be approved by the lift team, including vessel captain or equivalent.** **f. Where the load's center of gravity is undefined or unusual, a trial lift shall be performed to confirm the dynamics of the load, and if required, the load's rigging shall be reconfigured to balance**

		the load properly, within rigging tolerances. **g. Lifting equipment shall be visually inspected before and after use to identify any defects.** **h. Loose equipment and materials shall be put into a certified lifting container or secured by lashings or straps to avoid movement, shifting, or disintegration of the load during lifting.** **i. Start work checks shall be completed to confirm that safeguards have been verified by the lift crew before the lifting operation starts.**
	Guidance:	If taglines are used, entanglement hazards should be addressed and the use of “tangle free” variations should be considered. Trial lift for loads with undefined or unusual Center of Gravity are to be determined by the site lifting competent person. Control of the Red zone should be established and controlled by visual means (e.g., hazard tape, hard barricade). It is the responsibility of the Signal Person/ Banksman to watch for anyone moving towards the ‘line of fire’ during the lift, but all team members can Stop Work if anything unexpected happens, or if anybody begins to move towards the ‘line of fire’.
13.	**Requirement:**	**Lifting and Rigging activities shall be authorized in accordance with the Work Authorization CoW Standard.**
	Guidance:	Refer to Appendix B for Work Authorization requirements.
14	**Requirement:**	**Personnel with assigned responsibilities in Lifting and Rigging shall be trained and competent per the CoW Training & Competency Standard.**
15	**Requirement:**	**Documentation associated with Lifting and Rigging shall adhere to the record retention requirements detailed in the Control of Work Process.**

Appendix A: Lift Categorization

Lift Categorization		
Answer the following questions in order. The category of the lift matches the category of the first question answered 'yes.'		
Category 3	**y**	**n**
Is the gross load weight over 90% of the certified load chart of the crane?		
Does the operation involve the lifting or lowering of personnel for the purpose of completing work (excluding personnel transfer)?		
Will the lift involve tandem lifting using powered lifting appliances?		
Could the lift be affected by any proximity hazards (e.g., restricted area, energized power line, confined space, etc.)?		
Will the load be lifted over sensitive process equipment (as defined by WJO), or will sensitive process equipment be within the Red Zone of lift?		
Will the lift plan take more than one shift to complete?		
Will the lift plan require technical input or calculations from a technical expert (e.g., load distribution in lifting equipment)?		
Will the load be transferred from one powered lifting appliance to another?		
Will the load be lifted from one marine vessel to another and involve load complexities such as complex dynamics?		
Is the load to be rotated, up-ended/up-righted (e.g., roll-up, tailing or special lifting operations) or transferred from one appliance to another during operation (with load in suspension)?		
Will the lift be subsea?		
Will the lift involve proof load testing of appliances or lifting equipment?		
If you've answered YES to ANY of the above, the lift is CATEGORY 3. If you've answered NO to ALL of the above, proceed to the next set of questions		
Category 2	**y**	**N**
Is the gross load weight over 80% of the certified load chart of the crane?		
Is the weight of the load unknown and estimated to be over 60% of crane capacity?		
Will this lift involve personnel transfer to or from boat or barge?		
During the lift, will the crane operator's line of sight to the load be restricted/limited (i.e., 'blind lift')?		
Is the center of gravity unknown?		
Does the load have the potential to shift?		

Will environmental conditions place restrictions on lifting operations? (e.g., wind, rain, lightening, sea state)		
Is the load of an unusual shape (e.g., sail effect, offset center of gravity)?		
Does the load have any hazards such as sharp edges that cannot be mitigated?		
Is an engineered lift plan or specialized tools (e.g., spreader bars) required to prevent permanent deformation?		
Are necessary design and documented test results for lifting points absent or missing? (Note: lifting straps used in the choker configuration for low consequence lifts such as piping, valves, and associated piping equipment are out of scope here and may be category 1 lifts.)		
Does the load have excessive dimension (limited clearance from crane structures, surroundings)?		
Is the operation taking place during SIMOPS or interfering with other concurrent activities?		

If you've answered YES to any of the above, the Lift is CATEGORY 2.

If you've answered NO to ALL of the above, the lift is likely Category 1.

Category 1	**y**	**n**
Have you have answered "No" to all questions in Category 3 and Category 2		
AND		
Are the personnel involved in the lift trained, assessed as competent and authorized to perform their specific roles?		

If you've answered YES to BOTH the Category 1 questions,
the lift classified as CATEGORY 1.

Appendix B: Documents for Each Category of Lift

Type of Measure	Category 3	Category 2	Category 1
Lift Plan	Specific	Specific	Generic for the type of lift (reference guidance in Req. 3.)
Permit to Work	Required	WJO Discretion	WJO Discretion
Hazard Analysis	Specific	Specific	Generic for the type of lift
Pre-job Brief, Toolbox Talk	Required pre-lift	Required pre-lift	Required pre-lift
Start Work Checks Note: Multiple Start Work Checks may apply depending on activity/operation.	a. Mechanical Lifting b. Work around mobile equipment (if relevant) c. Man-riding (if relevant) d. Work at height (if relevant)	a. Mechanical Lifting b. Work around mobile equipment (if relevant) c. Work at height (if relevant)	a. Mechanical Lifting b. Work around mobile equipment (if relevant) c. Work at height (if relevant)

Appendix C: Personnel Involved in each Category of Lift

Type of Role	Category 3	Category 2	Category 1
Person in Charge	✓	✓	✓
Appliance Operator	✓	✓	✓
Rigger/ Slinger	✓	✓	If required by WJO Division
Signal Person/ Banksman	✓	✓	If required by WJO Division
Site Lifting Competent Person	✓ (Site approval of lift plan)	✓ (Site approval of lift plan)	✓ (Site approval of lift plan)
Approved Competent Person	✓ (Technical approval of specific lift plan)	If required by WJO Division	✓ (Periodic review approval of generic lift plans)
Note: One person may assume multiple roles if permitted under the CoW Work Authorization Standard, except that one person is not permitted to assume both the Site Lifting Competent Person and Approved Competent Person roles.			

Appendix D: Lift Plan Requirements

Note: Each lift shall be assessed to determine its Category as defined in Appendix A, and lift plans shall meet the plan requirements as defined below for the associated lift category. The same lifting appliance may be used for multiple lifts in differing categories throughout the lifting activity.

Category 1 Lift plans shall include the following information. This information can be listed within CoW Documentation, checklist, or stand-alone documents. This information is intended to help identify hazards and promote discussion with all personnel involved.
Number of Personnel required (specific roles identified if multiple work groups involved).
Communication method to be used.
Restrictions on the lift(s) (e.g., weather conditions, wind speed, light, sea state, ground bearing pressure).
The Center of Gravity (CoG) for each load, and/or lifting points identified prior to each lift.
The weight of the load if known and covered on load charts, or the estimated weight of the load which is less than 60% of the crane capacity at the lift radius.
Lifting equipment identified and adequately sized.
Lifting equipment certified with current inspection (crane, slings, etc.).
Pre-lift visual inspection of the load(s), including checks for dropped objects and load integrity.
Safe access and egress for slinging and unslinging the load. (e.g., Work at Heights, congested areas, walking working surfaces).
SIMOPS controls discussed and in place, if required.
Red Zone is identified and controlled.

Category 2 Lift plans for Category 2 are specific to the lift being conducted and require the following information in addition to all the information in Category 1:
Specific roles identified for members involved in the lift.
The weight, the Center of Gravity (CoG) position, and lifting points of the load identified and reviewed.
Rigging configuration and lifting equipment positioning discussed and verified by the site lifting competent person for each category 2 lift.
Load charts provided and reviewed.
The crane ground bearing pressure (outrigger loading) reviewed, where applicable.
Requirements to erect/dismantle the lifting equipment provided and reviewed, if applicable.
Wind speed monitored and confirmed below maximum acceptable limit of the lifting equipment for the duration of the lift.
Pick up zone, load path, and set down zone constraints (e.g., obstacles, spacing, and stacking) addressed and documented.

Category 3 Lift plans for Category 3 are specific to the lift being conducted and require the following information in addition to all the information in Category 1 and 2:
Names of personnel for each specific role that is involved in the lift. Including Site Lifting Competent Person, Approved Competent Person, engineers, SME involved.
The weight, and the Center of Gravity (CoG) and verified lifting points identified and documented. Additional manufacturer documentation shall be included if obtainable.
Supporting drawings or sketches (e.g., 2D or 3D computed aided drawings for complex lifting operations) including crane(s), load position, rigging diagrams, and operational steps (phases).
Plot plans of the work area.

Appendix E: Overhead Powerlines

During the planning of any lift, it is important to determine if any part of the equipment, load line, or load (including rigging and lifting accessories) could get close to a power line. If so, consider the following options:

Option 1: De-energize and ground the power lines. Confirm from the utility owner/operator that the power line has been deenergized and visibly grounded at the worksite.

Option 2: Ensure sufficient clearance in consultation with the utility owner/operator and in compliance with regional regulations.

Option 3: Use the Table below to determine if any part of the equipment, load line or load (including rigging and lifting accessories), while operating up to the equipment's maximum working radius in the work zone, could get closer than the minimum approach distance of the power line. If tag lines are used, they must be nonconductive.

This table is provided for guidance only; consult a Qualified Electrical Person and confirm clearance distances and encroachment hazard controls in compliance with local regulations.

Environmental conditions such as fog, smoke, or precipitation may require increased clearances.

Minimum clearance distances

Voltage (nominal, kV, alternating current)	Minimum clearance distance in meters (Feet)
up to 50	3 (10)
over 50 to 200	4.5 (15)
over 200 to 350	6 (20)
over 350 to 500	7.5 (25)
over 500 to 750	10.5 (35)
over 750 to 1,000	13.5 (45)
over 1,000	(As established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).

Note: The upper-end value of the ranges listed above are included in each range. For example, "over 50 to 200" means up to and including 200kV.

This section has been adapted from Occupational Safety and Health Administration Cranes and Derricks in Construction; Final Rule - Federal Register/Vol. 75, No. 152/Monday, August 9, 2010, which is available from https://www.govinfo.gov/content/pkg/FR-2010-08-09/pdf/2010-17818.pdf

Appendix F: Roles and Titles

Role	Example of job titles
Person In Charge	Crane Supervisor, Site Supervisor, Lifting Supervisor
Appliance Operator	Equipment Operator, powered lift Appliance Operator, Crane Operator
Rigger/Slinger	Roustabout, Floorhand
Signal Person/ Banksman	Signaler, Roustabout, Floorhand
Site Lifting Competent Person	Deck Foreman, Deck Pusher, Driller, Crew Supervisor
Approved Competent Person	Engineer, Lifting SME, WJO Appointed Lifting Authority,

Appendix G: Roles and Responsibilities

Role	Responsibilities
Site Manager	Accountable for the site and for applying the Lifting Management System requirements including the execution of safe lifting and hoisting operations at the site. Responsibilities include: • Appointing a Person in Charge of the lift and lifting crew. • Ensuring personnel are trained and competent for the task. • Ensuring lifts are properly studied, assessed, planned, and conducted safely. Ensuring that only suitable, certified, and sound equipment and machinery are provided
Site Lifting Competent Person (SLCP) (e.g., deck foreman, site lifting or rigging supervisor)	Possesses knowledge and experience to verify that lifting operations are planned and executed safely in compliance with legislation, standards, codes, and company requirements and that the lifting equipment used is in a safe to operate condition and suitable for the task. Responsibilities include: • Providing lift plan(s) and risk assessment(s) that meet, legal or regulatory requirements and company requirements. • Confirming that the lifting equipment is only operated within its safe operating limits and OEM operating instructions. • Advising others on preparation of the lift plan. • Confirming that the categorization and technical content of the lift plan is correct. • Approving the lift plan prior to submission for authorization. • Confirming that the lifting operations are untaken safely and in conformance the approved lift plan. • Participating in and deliver toolbox talks. • Confirming that all personnel involved in a lifting operation have sufficient training, experience, and appropriate supervision to perform the task competently relative to the categorization.
Approved Competent Person (e.g., Advisor, Engineer, or Subject Matter Expert)	Assist and support stakeholders in the definition of any aspect related to the lifting process. Provide technical advice and guidance for the following: • Internal auditing services required for the correct lifting management system implementation. • Design and selection of lifting appliances. • Developing and/or approving the generic lift plan for Category 1 lifting operations. • Developing and/or approving the specific lift plan for Category 2 and 3 lifting operations as per WJO. • Developing and reviewing documented thorough examination schemes for lifting appliances.

Role	Responsibilities
	• Developing and reviewing guidelines for the engineering and planning of the operations. • Investigating lifting related HSE events and sharing of the lifting operations lessons learned. • Reviewing lifting processes. • Conducting capability assessments of contractors and subcontractors for lifting operations. • Determining requirements for management of change and deviations in lifting operations. • Competence assessment, assurance, and training of lifting personnel.
Person in Charge (PIC)	The only person with operational control of the lift and authorization to give instructions to the lifting crew during the operations. Possesses the required level of competence to plan and supervise the specific lifting and hoisting operation and ensure that the lift plan is suitable for the task. Responsibilities include: • Categorizing, risk assessing, and planning Category 1 lifting operations. • Lifting appliance set-up/configuration, ensuring the correct equipment is available and safety devices are installed and operational. • Ensuring a Red Zone is established and controlled. • Ensuring the travel route of the lifting operation is clear and free from hazards and obstructions (e.g., overhead obstacles such as powerlines) to enable the lifting equipment and load to safely travel from the lifting to landing point without being impeded by any obstacles. • Ensuring there are good access and egress routes for the lifting team, including putting in place safe alternative routes if walkways are obstructed.
Appliance Operator	Trained and competent to operate the lifting appliance to be used. The only person allowed to maneuver the lifting appliance during the activity unless a change of planning and control documentation is made. Responsibilities include: • Carrying out pre- and post-use inspections. • Ensuring cranes are properly secured on firm and level foundation on outriggers and set up in accordance with the manufacturer’s instructions. • Checking the suitability of the routes for the forklift or mobile appliance to be used (e.g., ground conditions, slope, space). • Not leaving a load unattended or suspended above people. • Operating the appliance properly, verifying weight of load does not exceed the safe working load (SWL) or Working Load Limit (WLL) of lifting appliances.

Role	Responsibilities
	• Communicating with banksman before operation start to establish common understanding, signs, and instructions that will be used. • Contributing and participating in Toolbox Talks. • Not starting the operation if Safeguards/ barriers are not in place. • May also assume responsibilities of the PIC.
Rigger / Slinger	Trained and competent in attaching slings, lifting accessories, and shackles onto the load to ensure that it can be lifted and moved safely. Responsibilities include: • Inspecting and selecting lifting equipment correctly, ensuring certification is in place. • Inspecting the load and ensuring that any required certification is in place (e.g., integral lifting points). • Visual inspection of the load(s), including checks for dropped objects and load integrity. • Securely connecting and disconnecting lifting accessories to loads and accessories to lifting appliances. • Establishing a Red Zone and ensuring task areas are kept clear of non-essential personnel including the deployment of physical barriers where required. • Maintaining a safe position during lifting. • Contributing and participating in Toolbox Talks.
Signal Person/ Banksman	The only person authorized to give signals to the lifting operator. Responsibilities includes: • Controlling of the lift area, ensuring all personnel are positioned safely and using physical barriers to prevent access to Red Zones. • Watching for anyone moving towards the ‘line of fire’ during the lift, and stopping work if anything unexpected happens, or if anybody begins to move towards the ‘line of fire’. • Checking for potential dropped objects. • Maintaining direct sight of the load and clear communications with the appliance operator and making use of 2-way radios with designated channels. • Maintaining an awareness of other ongoing operations that may affect lifting activities. • Directing the movement and placing of loads. • Not performing any other job while the lift is in progress. • Contributing and participating in Toolbox Talks.
Lifting Equipment Inspector	A person competent to assess the condition and compliance of lifting equipment.
Lifting Equipment Controller	Manages all lifting accessories and loose lifting gear at a lift site. Responsibilities include:

Role	Responsibilities
	• Managing the Rigging Loft where accessories are stored • Keeping record, tracking, and verifying the accessories to determine the correct flow, disposal, certification availability and proper condition of all the accessories.

Appendix H: Terms and definitions

Term	Definition
Banksman	Title or role used to describe a person who directs crane operations.
Blind Lift	A lift where, at any point during the lift, the appliance operator cannot directly see the load.
Cargo Carrying Units (CCU)	Containers that are approved for lifting operations. Examples include closed container, chemical transit tank, aviation tank, tote tank, basket, garbage / rubbish container, drum rack, gas cylinder, rack / carrier, long basket, tool carrier, logging unit, power pack, toolbox and similar.
Centre of Gravity	The point on an object around which its weight is evenly distributed.
Certified	Signifies that the equipment has valid certification.
Certification	Written confirmation that an item of lifting equipment is compliant with / meets a required standard or process.
Color Code	A method of marking equipment (tagged or painted), to give a visual indication of its certification status. This color should be changed at each thorough examination. Paint should not cover any structural welds or load bearing locations that will be subject to visual inspection.
Competent	Description of individual who has sufficient training and experience or by defined assessment is capable of carrying out a task safely.
Competent Person	Authorized individual, who has sufficient training and experience or by defined assessment is capable of carrying out a task safely.
Generic Lift Plan	Used for Category 1 lifts and may be appropriate for multiple occurrences of similar routine lifts within specified limits but must be formally reviewed and re-issued periodically.
Ground Bearing Capacity	The ground’s ability to withstand an applied force.
Hands Free Lifting	Method of keeping personnel away from lifting hazards while the load is lifted and being landed.
Hazard Analysis	Identifies actual and potential hazards, establishes measures to eliminate or mitigate those hazards and verifies they are in place prior to performing work as well as monitoring their effectiveness during the work.
Inspection	Visual and functionality check by the user.
Lifting Accessory	Item of lifting equipment that is used or designed to be used directly or indirectly to connect a load to a lifting appliance and which does not form part of the load may also be called rigging.
Lifting Appliance (machinery)	Work equipment that is used or designed to be used for lifting or lowering a load and includes any attachments used for anchoring, fixing, or supporting it.

Term	Definition
Lifting Equipment	Collective term for lifting appliances and lifting accessories. Lifting equipment comprises lifting appliances (equipment performing the lifting), lifting accessories (devices that connect the load to the lifting appliance) and lifted items (load).
Lifting Equipment Contractor	A contractor who has been appointed to provide lifting operations and / or equipment and to carry out thorough examinations of designated lifting equipment as directed.
Lifting Equipment Register	Record / list, which identifies the type, description, and location of all lifting equipment (e.g., platform's fixed equipment registers).
Lifting Operation	Workplace, risk-based operation concerned with the lifting, lowering or suspension of a load.
Lifting Plan	Written safe system / control of work document, which includes for example, step by step instructions, a list of lifting equipment to be used, along with identify control measure to manage the risks identified in the risk assessment. See Appendix D for lift plan requirements.
Live Plant/ Sensitive Process Equipment	Equipment, protected or unprotected, having any single or combination of the following characteristics: plant containing hazardous, pressurized, energized, or strategic "fluid". It also includes primary power generation units and their exhaust systems.
Load	Any material, person or animal, or any combination of these, that are lifted or lowered by lifting equipment.
Load Chart	Diagram or table showing the rated capacity relative to the radius, environmental conditions, out of plane influences and type of operation.
Load Integrity	Ability of the load to safely withstand the forces applied during lifting and lowering.
Mechanical Lifting Operation	Activity that uses lifting equipment to lift or lower a load. If the lifting equipment parted the load would move.
Management of Change	Documented process designed to ensure that change is managed safely and efficiently.
Pre- and Post-Use Inspection	Visual checks and if necessary, function checks of lifting equipment by a trained / competent person (normally equipment user). Checklists may be used to aid this inspection and reference should be made to information such as manufacturer's instructions and relevant standards.
Proof Load Test	Load applied, by a Lifting Equipment Examiner (Independent Competent Person), to an item of lifting equipment to verify its integrity and functionality.
Red Zone	Sometimes also known as Exclusion Zones, Cone of Exposure, or No-Go Zones. Areas where access is controlled, and no one can enter unless authorized to do so. They should be clearly marked, ideally with physical barriers, so that a person cannot accidently enter one.

Term	Definition
Rescue Plan	Written document that describes the process of retrieving personnel safely in the event of an accident or incident.
Safe Working Load (SWL) Working Load Limit (WLL)	Terms used to describe the maximum capacity that an item of lifting equipment is designed to raise, lower, or suspend under particular service conditions.
Thorough Inspection	Recorded visual and functionality assessment of lifting equipment, carried out by a Lifting Equipment Examiner (Independent Competent Person), which may be supplemented with nondestructive testing and proof load testing, for the purpose of determining its condition / suitability for continued use for defined period of time.
Toolbox Talk	Recorded discussion between all members of a lift team prior to the commencement of work, in order to agree on all aspects of the work, the risk controls and the sequential steps to be taken to complete the work safely.
Utilization	Percentage of the maximum SWL / WLL being used.
Working Load Limit (WLL) and Safe Working Load (SWL)	Interchangeable terms used to describe the maximum capacity that an item of lifting equipment is designed to raise, lower or suspend under particular service conditions.

Appendix I: References

Internal References

WJO Control of Work CoW Process

WJO Hazard Analysis CoW Standard

WJO Work Authorization CoW Standard

WJO Electrical CoW Standard

WJO Training and Competency Standard

WJO Engineering Standards

External References

International Association of Oil & Gas Producers (IOGP)

IOGP Report No. 376:	Lifting and hoisting recommended practice (August 2022)
IOGP Report No. 411:	Recommended Practices for Diving Operations (January 2021)
IOGP Report No. 459	Life-Saving Rules

Occupational Safety & Health Administration (OSHA)

General Industry (29 CFR 1910)	1910.179 Overhead and gantry cranes 1910.180, Crawler locomotive and truck cranes 1910.181, Derricks
Marine Terminals (29 CFR 1917)	1917.71, Terminals handling intermodal containers or roll-on roll-off operations
Construction Industry (29 CFR 1926)	1926.552, Material hoists, personnel hoists, and elevators 1926.553, Base-mounted drum hoists 1926.554, Overhead hoists 1926.1408 Power line safety (up to 350 kV)—equipment operations. 1926.1409 Power line safety (over 350 kV). 1926.1410 Power line safety (all voltages)—equipment operations closer than the Table A zone.
Mineral Resources (30 CFR Chapter II- Bureau of Safety and Environmental Enforcement, Department of the Interior)	30 CFR 250.108, What requirements must I follow for cranes and other material-handling equipment?