Lifting and Rigging Standard

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REVISION CONTROL SHEET		
Revision	**Date Issued** (YYYY/MM/DD)	**Comments**
1	February 2020	Usability Mapped – Issued for Use
2	December 2020	Addition of Winching and Tugging Specific Section and Checklist.
3	March 2021	Added SME table
4	April 2022	Updated pre-lift checks (added an optional form), added LSR critical controls and other defenses, added guidance on the use of taglines and push poles.
5	September 2025	The following changes are made in this 5th revision. Section 3.2: Inspection requirements: "Ensure the capacity of the chain hoists do not exceed the beam's rated capacity" Section 3.2 Added a Subsection -Crane pre-use inspection Section 4.2 Subsection Rigging and Component Inspection: Added "Ensure Inspection tags on the sling before use." Section 4.2 Subsection Removal from Service Examples: Added "Any chain hoist, or chain hoists combined rated capacity exceeds the beam Safe Workload of the beam" and "Check safety latches for damage such as cracks, bends, or do not close as designed Section 5.1, Subsection Critical Plans: Added: Lift requires more than two mobile cranes in tandem, and Lift requires stamped engineered lift diagrams. Section 5.1 Subsection -Specific Critical Lifts: Added examples of critical controls as per WorkSafeBC Regulations. Section 7.1: Training: Added a subsection – Overhead Crane Operators and Supervisors. Section 7.2: Roles and Accountable positions: Added the roles of O&M in the roles and responsibilities section.

Contents

About this Standard

Purpose

The purpose of this standard is to provide the requirements to safely manage work involving lifting devices and rigging.

1. General Lifting Devices and Rigging

1.1 CPC Subject Matter Experts

Subject	Subject Matter Expert (s)
Chain Winches, Stationary/ Overhead Cranes	Site Construction Managers Supervisor, Mechanical Engineering
Picker Trucks	Sr. Logistics, Cranes and Heavy Haul Surmont Completions Field Superintendent, Montney Completions Field Superintendent
Cranes	Sr. Logistics, Crane and Heavy Haul Surmont Completions Field Superintendent, Montney Completions Field Superintendent Site Construction Managers
Zoom booms / forklifts / skid steers (for lifting)	Surmont Completions Field Superintendent, Montney Completions Field Superintendent Site Construction Managers
Winch trucks and bed trucks	Sr. Logistics, Cranes and Heavy Haul Surmont Completions Field Superintendent, Montney Completions Field Superintendent
Jack and Slide	Sr. Logistics, Cranes and Heavy Haul
Other	Surmont Completions Field Superintendent, Montney Completions Field Superintendent Site Construction Managers

NOTE: While functions are indicated, SMEs can be consulted for all lifting operations regardless of function.

1.2 General

Recommended Defenses

Hazards associated with work using lifting devices and rigging must be assessed and defenses implemented as required for:

- dropped objects,
- equipment and lifting gear failure, and
- overhead powerlines.

Severe Weather

Lifting equipment must not be operated in severe weather. Ensure visibility allows safe operations and follow the manufacture's recommendations for:

- wind speed, and
- temperature.

> **NOTE:** Follow local lightning notification and work restriction criteria.

2. Lifting Devices

2.1 Load Rating and Logbooks

Load Rating Labels

Lifting devices must have a plate or weatherproof label affixed indicating:

- load rating, and
- manufacturer's name, model and serial number or professional engineer's certification.

Load Charts

Load charts must be available to mobile crane operators or boom trucks and include:

- load capacities at vertical and / or horizontal angles of a boom,
- load capacities at various boom extensions,
- environmental limitations (e.g., temperature, wind, etc.), and
- equipment limitations (e.g., outrigger use / position, tire-pressure).

Logbook Requirements

A logbook (electronic or paper) must be kept for each lifting device at the work location according to the following jurisdictions:

Jurisdiction	Requirement
Alberta	Lifting devices with a rated capacity greater than 2,000 kg excluding manually operated lifting devices
British Columbia	• Cranes or hoists with a rated capacity greater than 900kg • All cranes and hoists used to support workers • All mobile cranes and boom trucks

Logbook Contents

The logbook must contain the following information:

Information	Details
Hours of service	• Length of time in service • hours of service are recorded if equipped with a manufacturer's hour meter
Safety items	• Any matter or incident affecting safe operation of lifting device • All defects or deficiencies and when detected
Inspections	• Date and time work was performed on lifting device • Inspections, including examination check and tests as specified by manufacturer • Repairs or modifications performed • A record of certification

3. Lifting Device Inspection Requirements

3.1 Mobile Lifting Equipment

Mobile Crane and Boom Truck Inspection Frequency

All mobile cranes and boom trucks must be inspected as follows:

Inspection type	Frequency of Inspection
Daily	• To be performed daily prior to use

Periodic	• Every 3 months or every 350 hours of machine time
Annual	• To be performed annually

NOTE: Complete structural inspection of telescopic boom is required any time it's disassembled, every 10 years, or 10,000 hours of service.

Mobile Crane and Boom Truck Inspection Requirements

Inspection frequency requirements are as follows:

Daily Inspection	Requirement
Structural	• All rope reeving, including load lines, jib suspension, boom hoist and mid-point suspension • All air, hydraulic, lubricating, and cooling systems for deterioration or leakage • Hooks and latches for deformation, chemical and heat damage, cracks, and wear • Swivels for freedom of rotation • Outriggers, outrigger boxes, and tires
Mechanical	• All control mechanisms for incorrect and/or malfunctions interfering with proper operation • All control mechanisms for excessive wear of components and contamination by lubricants or other foreign matter • Electrical apparatus for malfunction, signs of excessive deterioration, dirt, icing and / or moisture accumulation • Hydraulic system for proper oil level • Clutches, brakes, and attachments for malfunction
Periodic Inspection	**Requirement**
Structural	All daily inspection items and the following: • deformed or corroded and cracked members or welds in the crane structure or boom • loose bolts, nuts, or pins • cracked, worn or distorted parts such as: ○ pins

	○ gears ○ rollers ○ locking devices ○ wear on brake and clutch system parts such as linings ○ pawls and ratchets ○ load, boom angle and other indicators ○ all power plants ○ hooks
Mechanical	• All control mechanisms for excessive wear and contamination • Travel steering and braking system for malfunction • Hoses, fitting and tubing for leakage, blistering, deformation, tight joints, excessive abrasion or scrubbing • hydraulic and pneumatic pumps and motors for loose bolts, fasteners, leaks, shaft seal leaks, unusual noises or vibration, loss of operating speed, excessive heating, or loss of pressure • Valve for cracks, leaks, sticking or failure • Cylinder for leaking, seals, weld joints, scored, nicked, dented rods, dented case, loose, deformed rod eyes, and joints • Filters • Windows, horn, wipers, heater, defroster, lights, gauges, transmissions, differential, cooling, fuel, electrical system, drive belts, suspension, steering, brake systems, crawler chain, tracks, sprockets and rollers

3.2 Overhead Travelling Cranes

Service Types, Class Descriptions and Inspection Frequency

Overhead travelling crane service types, class descriptions, and inspection requirements are as follows:

Service	Class Description	Inspection Frequency
Light	• Class A, Standby or Infrequent Use • Precise handling of equipment at slow speeds with long idle periods between lifts • Used for initial installation of equipment and infrequent maintenance	Monthly operational / visual inspection

	• Examples: motor rooms, MCC rooms, compressor buildings, etc.	Annual Periodic Inspection
	• Class B, Light • Low speed, light service requirements • Occasional full rated loads • Approximately 2-5 lifts/hours, averaging 3m/lift • Examples: cranes in repair shops, light assembly operations, service buildings, warehouses, etc.	
Heavy	• Class C, Moderate • Average 50% of rated capacity • Approximately 5-10 lifts/hour averaging 3m/lift, less than 50% of lifts at rated capacity • Examples: cranes in manufacturing, machine shops, or papermill machine rooms	Weekly to monthly operational / visual inspections
	• Class D, Heavy • Loads approaching 50% of rated capacity • 10-20 lifts/hour averaging 5m/lift • Examples: cranes in heavy machine shops, foundries, steel warehouse, container yards	Semi-annual periodic inspection

Inspection Requirements

Inspection requirements for overhead travelling cranes are as follows:

Inspection Type	Requirements
Operational/Visual	• Conducted by operator or designate • Recorded in logbook • Identify defects, malfunctions, and damage • Inspect for leaks, wear, cracks, certification labels • Test limit devices and breaks
Periodic	• Conducted by crane inspector and recorded in logbook • Verifies supporting structure is suitable for max load rating • Identify defects, malfunctions, and damage • Ensure the capacity of the chain hoists do not exceed the beam's rated capacity

> **NOTE:** Cranes out of service for one month but less than one year require an operational inspection. Cranes out of service > one year require a periodic inspection.

Overhead Crane Beam Pre-Use Inspection

Before attaching a chain hoist, workers must:

- confirm the rated capacity of the beam,
- verify the weight of the load and the capacity of the chain hoist, and
- ensure the combined load does not exceed the beam's rated capacity.

> **WARNING:** Do not attach any chain hoist or load that exceeds the beam's rated capacity.

4. Slings, Rigging and Below-the-Hook Devices

4.1 Safety

Working Load Limits

Working load limits are as follows:

- rigging maximum load rating must be legibly indicated on rigging,
- available to workers if markings cannot be placed on rigging, and
- must be checked for each rigging component prior to any lift.

Rigging must not be subjected to a load more than the following:

Lifts	% of breaking strength of rigging weakest part
Rigging for workers	10
All other lifts	20

Safety Factors and Rigging Components

Rigging components must be rated relative to their ultimate breaking strength per the following minimum safety factors:

Components	Safety Factor
Running lines	3.5 to 1
Non-rotating hoist lines	5 to 1

Tugger lines / block for pulling	3 to1
Pendant lines / guy lines	3 to 1
Winch lines	2 to 1

Tow Operations

Rigging components or hoisting lines used in a tow operation must not be used for a hoist operation.

Safety Hooks and Latches

Hooks must be replaced with the following types where hook dislodgement could injure workers:

Hook type	Visual example
Hook with safety latch	
Anchor-type shackle with bolt, nut and retaining pin	
“moused” hook (e.g., wrapping of soft wire, rope, etc.)	

Suspended Personnel Baskets

Suspended personnel basket requirements are as follows:

- All personnel baskets must be commercially manufactured or designed and certified by a professional engineer.
- Pre-use inspection is required.
- Secondary safety device must be attached between basket and hoist line above the hook assembly.
- Workers in the personnel basket must use fall protection equipment per ConocoPhillips Working at Heights procedure.

Chain Rigging

Lifting using chains is by exception only. To use chains for lifting:

- they must be certified lifting chains for the intended application, and
- the exception must be documented on the safe work permit and signed by a competent and appropriate CPC supervisor.

WARNING: Transport chains are not permitted for use during lifting and rigging operations.

4.2 Inspection and Repair

Rigging and Component Inspection	All rigging and components must be inspected to ensure functionality and safety prior to each use. Ensure Inspection tags on the sling before use.
Preventive Maintenance	Include the CPC rigging equipment in PM program schedule.
Removal from Service Examples	Rigging equipment must be removed from service when the following is observed: • Damage is above manufacturers' tolerances. • Chemical damage includes melting and charring or electrical contact. • Broken or worn stitching. • Distorted rope structures such as bulging, kinking, or bird caging. • Cracked, broken, corroded, or distorted fittings. • Load hooks are open more than 15% of normal throat opening, are 10° out of plane or if any dimension has been reduced by more than 10%. • Broken, corroded, or distorted strands on wire rope such. • The rated capacity of chain hoist or combined capacity of multiple chain hoists exceeds the beams Safe Workload Limit. • Safety latches which do not close or have damage such as cracks or bends. Follow provincial regulations for running and stationary wire rope.
Rigging Repair	Rigging repair requirements are as follows: • Makeshift fittings or attachments are not permitted. • Welding repairs to rigging chains and fittings must be certified safe for use by a professional engineer.
Storage	Rigging must be stored in a designated storage area when not in use.

5. Safe Operating Practices

5.1 Planning and Documentation

Weight of Load Being Lifted

The weight of the load being lifted must be determined and communicated to the operator and any person rigging the load. The weight must not exceed safe working load (SWL) limits of the weakest rated rigging component used.

Methods for determining the weight of a load may include the following. Use at least two methods whenever available:

- the manifested shipping weight,
- the manufacturer's crane load cell weight (must be requested at the time of equipment procurement),
- engineered calculations, or
- vendor drawings.

Critical Lift Plans

Critical lift plans (e.g., ALL-A0A-00-000-HFR-0006 or contractor equivalent) are required for lifts meeting any of the following criteria for both Alberta and British Columbia:

- lifts exceeding 75% of the crane's rated capacity,
- lifts of a person in a work platform suspended by a crane,
- lifts of a load over or near energized power lines with voltage (> 750 V),
- lift over live process equipment or piping,
- lift requires more than two mobile cranes in tandem, or
- lift requires stamped engineered lift diagrams.

BC-Specific Critical Lifts

The following are considered critical lifts in British Columbia:

- A tandem lift if the load on any one crane, hoist or other piece of powered lifting equipment exceeds 75% of the rated capacity.
- A lift in which the center of gravity of the load changes during the lift.
- A lift in which the length of one or more sling legs changes during the lift.
- A lift of a submerged load.

Critical Lift Plan Contents	A critical lift plan must be completed by a qualified person and contain the following: • rigging details, • wind speed limitations, • maximum hoist line speed, • maximum crane travel speed, if applicable, • load distribution, and • signalers and their positioning, if applicable.

5.2 Pre-Lift Checks

Pre-Lift Checks	Prior to initiating a non-critical lift, a Lifting and Rigging Pre-Lift Checklist (ALL-A0A-00-000-HFR-0039) can be completed, but it is not mandatory.
Query title evokes a user question	Answer content column is 5 inches wide. Content requires echo statement with c-link. Apply the applicable 'voice' to align with the character of the content or message. Write in active, passive, command, or legal tone as required by the document type and the message.

5.3 Critical Controls and Safe Work Practices

Critical Controls	The ConocoPhillips critical controls for the Lifting Operations Life Saving Rule are: • Establish, maintain, and honor barriers and exclusion zones. • Do not walk under a suspended load. • Confirm all equipment is rated for load.
Requirements for Personnel	Requirements for personnel involved in lifting operations are as follows: • The lifting device operator must be in full control of equipment and must not perform other duties while in operation of the equipment. • No personnel are allowed to work under a suspended load. • No loads must be lifted over workers. • Only members of the immediate lift team are allowed in proximity of crane while a critical lift is in progress.

- Workers are not allowed to ride the load or any other rigging equipment.
- Personnel are to be kept clear of the load while load is hoisted.
- Assign designated signalperson as identified in work planning.
- Personnel are to be certified and deemed competent in their respective tasks (i.e., rigging, operation of a lifting device).

Requirements for the Load

Requirements for loads are as follows:

- Load must be checked to ensure it is not welded, bolted, or clamped to the surface.
- Loads must be checked for loose or hidden debris that could fall during lift.
- Do not drag loads along the ground.
- Position hook directly over the loads center of gravity and seat sling squarely on the hook bowl.
- Guard against shock loading by taking up slack slowly.
- A hook or lifting lug must not be side, back, or tip-loaded, unless the hook has been specifically designed for this purpose.
- Loads must not be left suspended.

Requirements for the Signal Person

Requirements for signal persons are as follows:

- Must be present when the lift operator does not have full view of the entire operation.
- Should provide signals to the lift operator.
- Should use signals provided in provincial OHS code/regulation. Signal person and operator shall confirm prior to the lift.
- Must use radio communication or another equally effective for blind lifts.

Using Sling

When using slings consider the following:

- Size, weight, configuration, and balance of load must be determined and arranged so sling will not slip or fall off.
- Do not lift loads using one leg of a multi-leg sling until unused legs are secured.
- Slings and straps should be protected from damage where slings contact sharp objects or may be exposed to bending.
- Use spreader bars to increase angles.

Taglines on Loads

Suspended loads should be controlled by taglines or push poles unless two or more cranes are used for the lift and the cranes have full control of the load.

When using tag line on loads:

- avoid tying tagline to lifting gear and
- tagline must be long enough to properly control load and prevents load from striking the worker controlling the tag line.

Workers guiding loads must have an escape route during the lift.

WARNING: Taglines may present additional hazards that will require defenses. Consider push poles as an alternative to tag lines to keep workers out of the line-of-fire.

6. Winching and Tugging Specific

Hazard Assessment

Contractors must have a Job Hazard Assessment or procedure specific to the task and equipment being used.

Hazards associated with work must be assessed and defenses implemented. This may include but is not limited to:

- danger zones,
- equipment and lifting gear failure,
- overhead powerlines,
- hazardous ground conditions (e.g., icy, muddy, soft etc.), and
- poor visibility (e.g., darkness or weather related).

WARNING: Only structures/items designed to be winched can be winched.

NOTE: Consider alternatives to winching during job planning. Select the safest method available.

Working Load Limits

The weight of the load must be determined taking into consideration the contents and drag.

The weight must not exceed safe working Load (SWL) limits of the weakest rated rigging component used. The maximum rating of the rigging:

- must be legibly indicated on rigging,
- available to workers if markings cannot be placed on rigging, and
- checked for each rigging component prior to any move.

> **NOTE:** The weight of the load must be indicated on the hazard assessment and communicated to all personnel involved in the work.

Rigging Inspection	All rigging and components must be inspected to ensure functionality and safety prior to each use. Use the CPC Winch Truck Inspection form (ALL-A0A-00-000-HFR-0031) as a guideline.
Rigging Repair	Welded repairs to rigging chains and fittings must be certified safe for use by a professional engineer.
Prohibited Rigging Components	The following must not be used: • Makeshift fittings or attachments • Components or hoisting slings used in lifting or tow operation • Transport chains • Lever boomers/binders

> **NOTE:** Only rachet style boomers/binders are permitted.

> **NOTE:** Rigging with Chains is by exception only. They must only be used in special circumstances and must be approved by CPC. See Section 4.1

Competency Requirements	Personnel must be authorized and deemed competent by an appropriate representative of their company in: • operation of the specific equipment and • signaling practices.
Task Specific-Double Sucking Loads	To double-suck loads, contractors must: • obtain approval from the appropriate CPC supervisor, • have a documented process or procedure specific to double sucking loads, • use appropriate and certified slings to connect loads. Chains are not permitted,

- be the owners of the loads/equipment that they double suck, and
- complete a hazard assessment for the task.

7. Training & Roles and Responsibilities

7.1 Training

Competencies for Using Lifting Devices or Rigging

Personnel must be deemed competent by an appropriate representative of their company demonstrating competency in:

- operation of the specific lifting / rigging equipment and practices,
- use of load charts,
- use of the hand of signals for hoisting operations, and
- all workers and operators must be authorized to operate the specific equipment and be able to provide proof of training at all times.

British Columbia Requirements

In British Columbia, mobile and tower cranes must be operated only:

- by a person with a valid operator's certificate, and
- per conditions stipulated on the certificate.

Overhead Crane Operators and Supervisors

The overhead crane operators shall be familiar with:

- provincial OHS Regulatory requirements,
- identifying cranes and their components,
- pre-operational, operational and post-operational requirements, and
- rigging components, inspection / rejection criteria.

7.2 Roles and Accountable Positions

Lifting and Rigging Responsibilities by Role

Responsibilities for workers involved in lifting and rigging operations are:

Role	Responsibilities
Supervisors	• Ensure workers are trained and competent to operate the specific devices or conduct rigging activities at the worksite. • Ensure adequate rigging is available.

Workers	• Be competent to operate specific lifting devices and/or perform safe rigging for lifting activities. • Be familiar with recent logbook entries prior to operating lifting devices. • Be able to provide proof of training at all times.
O&M	• Ensure all lifting devices and rigging equipment come under Preventive Maintenance program.

References

Document Name	Document ID
Critical Lift Plans	ALL-A0A-00-000-HFR-0006
Winch Truck Inspection	ALL-A0A-00-000-HFR-0031
Lifting and Rigging – Pre-Lift Checklist	ALL-A0A-00-000-HFR-0039
Working at Heights procedure	ALL-A0A-00-000-HST-0003
Alberta OHS Regulations Part 6: Cranes, Hoists and Lifting Devices	N/A
WorkSafe BC OHS Regulation Part 14: Cranes and Hoist	N/A