



Lifting & Rigging Standard

1. PURPOSE

This Standard provides minimum requirements to safely manage work involving lifting, rigging, and mechanical handling of materials.

Mechanical Lifting



Plan lifting operations and control the area

- Confirm the equipment and load have been inspected and are fit for purpose
- Only qualified persons shall operate equipment
- Establish and obey barriers and exclusion zones
- Never walk under a suspended load

2. SCOPE

This Standard is applicable to employees employed by Expand, its affiliates or subsidiaries who utilize lifting and hoisting equipment on Expand properties or on the company’s behalf.

Contractors **shall** have their own Standards that meet or exceed regulatory requirements.

3. DEFINITIONS

Competent Person – an individual who, through knowledge, experience, and training, is capable of identifying existing and potential hazards, and is authorized to take prompt corrective measures.

Critical Lift – A lift which meets any of the following criteria:

- The lifted load exceeds 75% of the lifting device’s rated capacity at the applicable radius;
- The load is to be lifted over live equipment; or,
- The lift requires more than one crane to lift the same load (i.e., tandem lifts).

Hoist – A manual or powered lifting device usually attached to a trolley, which travels along a monorail or bridge crane, but may also be affixed to a stationary point.

Lifting Device – Manual or powered equipment used to lift and move heavy loads and materials (e.g., mobile cranes, truck cranes, fork trucks, fixed/travelling overhead cranes, hoists, derrick cranes, jib cranes).

Live Equipment – Process or storage equipment, piping, vessels, tanks, etc. that is online and running, and/or contains process/production fluids or hydrocarbons. Electrical generators, high voltage conductors, transformers.

Load Chart - A table that summarizes the crane static, dynamic, and personnel handling load capacities at various boom angles, radii, and reeving configurations. The load chart will include boom length, cable size, and weight of block, crane model, and serial number.

Overhead Crane – Cranes commonly used in fixed locations for routine and simple lifts and handling of materials. The hoist machinery which is commonly a part of these types of cranes may be a manual chain hoist (i.e., a chainfall) or a hoist powered by either electricity or compressed air.

Rated Capacity - The maximum gross load which may be applied to lifting machinery such as a crane, hoist, winch or lifting attachment while in a particular working configuration and under a particular condition of use.

Rigging – The act or process of safely attaching a load to a hook by means of adequately rated and properly applied slings and related hardware (shackles, spreader bars, etc.).

Shall – Denotes a minimum requirement to conform to the Standard. To aid the reader, “shall” requirements are identified in bold. Any deviation from a minimum requirement must be approved via the Standard Exception Form.

Should – Denotes a recommendation, or that which is advised, but not required to conform to the Standard.

Spotter – A person at the job site who is trained to assist equipment operators, especially when visibility is limited, by alerting them to hazards, providing directions, and ensuring safe maneuvering. Spotters use hand signals, radios, or verbal communication to guide the operator.

Tag Line – A non-conductive line used to prevent rotation of a load or aid in the positioning of a load (usually used to allow personnel to maneuver a load while keeping their hands/bodies out of harm’s way).

Working Load Limit (WLL) - The term used for all lifting/rigging equipment below the crane’s hook block, WLL is the maximum working load designated by the manufacturer of rigging hardware (shackles, spreader bars, slings, etc.). This load represents a mass or force that is much less than that required to make the lifting equipment fail or yield, also known as the Minimum Breaking Load (MBL). WLL is calculated by dividing the MBL by a safety factor.

4. ROLES & RESPONSIBILITIES

4.1. SUPERVISORS

- **Shall** ensure their employees are trained on this Standard and competent to operate the lifting equipment they are authorized to use

4.2. PERSON IN CHARGE (PIC)

PIC who has operational control of a lifting operation **shall** ensure:

- Required inspections of lifting and rigging equipment are performed and documented properly
- Personnel involved or affected by the lifting operation have been briefed
- Correct equipment is available as detailed within the JSA and Lift Plan
- Mitigations and risk control measures are in place
- Pre-lift safety meeting has been completed
- Communication method is agreed with everyone involved in the lifting operation

4.3. EMPLOYEES

- Be competent and authorized to operate specific lifting and rigging devices
- Establish, maintain, and honor barriers and exclusion zones

4.4. CRANE OPERATOR

- **Shall** be properly trained and qualified with all aspects of safe crane operation for the equipment in use.
- Have a valid certificate from an accredited agency if applicable

4.5. RIGGER

- **Shall** be properly trained and authorized to sling, lift, move and manipulate loads with a wide variety of lifting equipment
- Participate in the Pre-lift safety meeting
- Prepare the load for lifting according to the Lift Plan
- Use tag lines and/or hands-free devices as determined by the JSA and/or Lift Plan

4.6. SPOTTER

A spotter **shall** be properly trained and is authorized to give clear, precise commands to the crane operator. For lifts that require a spotter, only the spotter is authorized to give instructions

to the crane operator and the crew during lifting operations. However, anyone can give an emergency STOP signal to the crane operator. The spotter **shall**:

- Participate in the Pre-lift safety meeting
- Know the equipment operator's blind spots
- Watch for hazards along the path of travel
- Direct the movements of the crane and load to ensure the safety of personnel and equipment

5. REQUIREMENTS

5.1. GENERAL PRACTICES

Prior to lifting and rigging activities implement the following exposure controls:

- Complete pre-use inspections to prevent equipment failure.
- Avoid setting cranes and outriggers over ditches and soft spots.
- Use outrigger mats and blocks as intended. If a crane is equipped with outriggers/stabilizers, they **shall** be deployed every time the crane is used to lift a load.
- Booms **shall** have a functioning angle indicator.
- Implement exclusion zones via barricades or flagging to protect against dropped objects and overhead hazards.
- Use tag lines and/or push poles to keep workers away from the suspended load.
- Identify communication devices and signals to be utilized by spotter.

5.2. LIFTING DEVICES

5.2.1. NAMEPLATES

Lifting devices **shall** have a plate or weatherproof label affixed which indicates:

- Load Rating
- Manufacturer's name, model, and serial number

5.2.2. LOAD CHARTS FOR MOBILE CRANES

Load charts **shall** be available to operators of mobile cranes, boom trucks, and fork trucks and include:

- Load capacities at vertical and horizontal angles of a boom

- Load capacities at various boom extensions
- Environmental limitations (e.g., wind speed, temperature)
- Equipment limitations (e.g., outrigger use/position, tire pressures)

5.2.3. OVERHEAD CRANES

All overhead cranes shall comply with ANSI/ASME B30.2 Overhead and Gantry Cranes.

The rated load of the crane shall be plainly marked on each side of the crane, and if the crane has more than one hoisting unit, each hoist shall have its rated load marked on it or its load block.

5.2.4. INSPECTION OF LIFTING DEVICES

Inspections of mobile lifting devices and of overhead cranes **shall** be performed in accordance with regulatory requirements and manufacturer’s guidelines.

Mobile Cranes	<p>All mobile cranes, boom trucks and powered industrial trucks shall be inspected with the following frequencies, at minimum:</p> <ul style="list-style-type: none"> • Daily or as used • Monthly • Annually
Overhead Cranes	<p>All overhead cranes shall be inspected with the following frequencies, at minimum:</p> <ul style="list-style-type: none"> • Daily or as used • Monthly or as used

Appendix A includes additional information regarding Inspections of lifting devices.

5.3. RIGGING

Rigging refers to loose lifting equipment that is used to suspend, support, position and lift a load. Rigging includes slings, shackles, spreader bars, hooks, pallets, and the like.

5.3.1. SAFETY

- Rigging equipment **shall** be professionally engineered, manufactured, and procured. No homemade lifting equipment unless certified by a professional engineer.

- All hooks and below-the-hook lifting devices **shall** have a rated working load limit (WLL).
- Chain slings **shall** have permanently affixed and legible identification markings that include nominal chain size, grade of steel, WLL, length (reach), and a unique identification number.
- Wire rope slings **shall** have permanently affixed and legible identification markings that indicate the recommended WLL for the type(s) of hitch(es) used, the angle upon which it is based, and the number of legs if more than one.
- Synthetic web slings **shall** be marked or coded to show the rated capacities for each type of hitch and type of synthetic web material.
- All shackles must have their rated capacity clearly embossed, be either stainless or forged alloy, and **shall** meet the requirements of ASME B30.26.
- Bolt-nut and cotter pin shackles **shall** be fitted with cotter pins through end of bolt after thread nut is applied.
- Hooks used for lifting **shall** be equipped with safety latches.

5.3.2. INSPECTION

All rigging **shall** be visually inspected before each use.

Rigging equipment must be removed from service when any of the following is observed:

- Chemical damage including melting and charring or electrical contact
- Broken or worn stitching
- Distorted rope structure such as bulging, kinking, or bird caging.
- Cracked, broken, corroded, or distorted fittings
- Broken, corroded, or distorted strands on wire rope
- Load hooks that are stretched/distorted or have safety latches that don't seat properly

See Appendix B for additional Rigging inspection details.

5.4. SAFE OPERATING PRACTICES

5.4.1. PLANNING BEFORE THE LIFT

There are two categories of lifts on EXE locations, **Routine Lifts** and **Critical Lifts**. Critical Lifts require documented plans and reviews.

Routine Lifts	<hr/> <ul style="list-style-type: none"> • Typically includes multiple lifts of various types of loads • Load is < 75% of lifting equipment’s rated capacity • Requires on-site pre-job review/toolbox talk <hr/>
Critical Lifts	<ul style="list-style-type: none"> • Load is > 75% of lifting equipment’s rated capacity • Lifting over live equipment • Lifts involving more than one crane to lift the same load (i.e., tandem lifts) • Requires specific lift plan (see Appendix B for EXE Critical Lift Plan Template) • Requires on-site pre-job review/toolbox talk <hr/>

5.4.2. PRE-USE SET UP

Prior to initial use, all new or altered machinery **shall** be inspected and load tested by the manufacturer or their representative to ensure compliance and provide a certificate of load rating. All load test records **shall** be maintained at the location/office responsible for the equipment for the duration of the equipment’s service at EXE.

Prior to carrying out a lifting operation with mobile crane(s), a pre-job safety meeting **shall** be conducted where details of the task are discussed with all personnel involved or impacted; the applicable JSA is to be reviewed and discussed at this time as well.

Pre-Lift Checks	<hr/> <p>Prior to initiating a lift, the following pre-lift checks shall be completed:</p> <ul style="list-style-type: none"> • Operator has proper training/certification to operate the lifting equipment • Crane pre-use inspection is completed <hr/>
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- Rigging is installed and inspected
- Flagging / barricading in place as determined by JSA
- Load weight confirmed and load chart reviewed

5.4.3. CONTROL MEASURES DURING LIFTING OPERATIONS

During a lift, the following controls **shall** be ensured:

Element	Requirements
Personnel	<ul style="list-style-type: none"> • The lifting device operator shall be in full control of equipment and must not perform other duties while in operation of the equipment • No personnel are allowed under a suspended load; no loads shall be lifted over workers • No worker shall be allowed to ride the load or any other rigging equipment • Assign designated spotter as identified in work planning
Load	<ul style="list-style-type: none"> • Load is checked to ensure it is not welded, bolted, or clamped to the surface • Check for loose or hidden debris that could fall during lift • Loads shall not be left suspended • Laydown area should be checked to ensure adequate size and ability to hold the load
Weight of Load	<ul style="list-style-type: none"> • 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 WLL of the weakest rated rigging component used
Slings	<ul style="list-style-type: none"> • Size, weight, configuration, and balance of load must be determined and arranged so sling will not slip or fall off • Equally divide load when using multiple slings

Spotter	<ul style="list-style-type: none"> • A spotter shall be present when the lift operator does not have full view of the entire operation • Only one person should provide signals to the lift operator except to warn of a hazardous situation • Radio communication or another equally effective method shall be used for blind lift
Tag lines	<ul style="list-style-type: none"> • Tag line must be long enough to properly control load and prevent load from striking the worker controlling the tag line • Workers guiding loads must have an escape route during the lift

5.5. PERSONNEL HOISTING

Personnel hoisting with a lifting device **shall** only be performed after all other alternative methods of ascending or descending (e.g., ladders, stairs, scaffolding, etc.) have been considered and personnel hoisting is determined to be the safest means of reaching the desired work area or for performing the task.

Only certified personnel baskets which meet or exceed relevant OSHA and ASME requirements **shall** be utilized.

5.6. POWER LINES

In areas where overhead power lines may pose a threat to safe operation of mobile lifting equipment the following safety precautions **shall** be observed:

Element	Requirements
Notifications	<ul style="list-style-type: none"> • Notify the appropriate personnel at least 24 hours before beginning any work that requires identification of voltages and clearances, or de-energize if these items cannot be done, apply safety grounds, or relocate lines. • Inform employees of the hazards and precautions when working near overhead lines.

Safe Practices	<ul style="list-style-type: none"> • Power lines must be presumed energized until the utility owner/operator confirms that the power line has been de-energized and visibly grounded at the worksite. • Barricades/flagging shall also be used to limit crossings under power lines to designated locations. • All tag lines used must be clean and non-conductive. • Ensure that when equipment is working near the proximity of overhead lines a spotter is dedicated to observing for safe working clearances around all overhead lines.
Voltages	<ul style="list-style-type: none"> • Ensure that crane operations are not conducted in proximity to overhead power lines until the nominal voltage on the power lines is confirmed and minimum working distance (see table below) is assured. • If the Crane Operator is not sure of voltage on the overhead power lines, he or she must consult with their supervisor. • For energized electrical lines up to 50kV, no part of a crane, boom, mast, gin pole or machinery is permitted to be within 10 ft. (3 m) of the power lines. For energized lines above 50 kV, see the table below.

Voltage (kV ac)	Minimum Clearance (feet)
≤ 50	10 (controls required at 20 feet)
Over 50 to 200	15 (controls required at 20 feet)
Over 200 to 350	20
Over 350 to 1000	45
Over 1000	Check with operator/engineer

5.7. AIR AND HYDRAULIC HOIST OPERATIONS

- Personnel **shall** NOT stand between the hoist and the load.
- Operators **shall** always stand behind the hoist with one hand on the line guide and the other hand on the hoist controls (except if using a pendant control to maintain line of sight).
- Hoist operators **shall** NOT leave the air hoist any time equipment or personnel are elevated.
- Hoists **shall** be equipped with guards around the wire-line spool
- The hoist throttle **shall** be operated at a slow steady rate and returned to the neutral position when released by the operator.
- The hoist drum brake **shall** be set anytime the load, or a person is stopped in suspension.
- A single, designated spotter **shall** be used to maintain visual contact between the load and the hoist operator.
- The hoist line **shall** be secured to a stationary object upon completion of all hoisting.
- Hoist exhausts **shall** be routed through the rig floor to reduce exposure to high noise hazards.
- Hoists **shall** NOT be operated in neutral position allowing free fall of the load or personnel.
- Hooks and hoisting equipment **shall** be visually inspected prior to each use for cracks, excess wear, or damage. Hazardous rigging **shall** be taken out of service and destroyed. Lines “bird caged” on the drum **shall** be corrected and visually inspected before lifting any loads or personnel.
- Snatch blocks or sheaves **shall** be used to change the direction of pull on a hoist. Routing the hoist line through a shackle or over a beam is prohibited as this produces excess wear on the wire rope.
- The working end of the hoist line **shall** be fitted with a thimble eye and shackle. Factory-made eyes are required for hoisting personnel and are preferred over field-made eyes for lifting equipment.
- “Sure-Lok” type hooks with outward opening latch and release trigger on backside of the hook **shall** NOT be allowed.

6. TRAINING

Each employee assigned to operate and/or inspect hoisting and lifting equipment **shall** complete initial and requalification training as required.

Riggers and Spotters **shall** complete initial and periodic training as required to perform applicable responsibilities.

7. AUDIT REQUIREMENTS

Audits **shall** be periodically conducted by HSER in order to confirm compliance with this Standard.

8. STANDARD EXCEPTIONS

Requirements outlined in this Standard **shall** be followed, unless a Standard Exception is filed on behalf of, and with the approval of the Operations Manager. The Company’s Standard Exception Form is to be utilized to properly document any exceptions.

9. REFERENCES

- 29 CFR 1910.179 - Overhead and gantry cranes
- 29 CFR 1910.180 – Crawler, locomotive and truck cranes
- 29 CFR 1910.184 - Slings
- 29 CFR 1926.1400 – Cranes and Derricks in Construction
- ANSI/ASME B30.2 Overhead and Gantry Cranes
- ASME B30.5 – Mobile and Locomotive Cranes
- ASME B30.20 – Below-the-Hook Lifting Devices

10. DOCUMENT CONTROL TABLE

Title: LIFTING & RIGGING STANDARD		Document Number: HSER-SAF-EXE-STD-0-012		
Next Review Date: 5/21/2028				
Originating Department: HSER				
Version History				
Version	Issue Date	Description	Author(s)	Approved By
1.0	05/21/2025	Developed EXE Lifting & Rigging Standard	Katie Rhoads	OGB

11. APPENDICES

- Appendix A – Lifting Devices Inspection Guidelines
- Appendix B – Rigging Equipment Inspection Guidelines
- Appendix C – Critical Lift Plan

APPENDIX A – Inspection of Lifting Devices

A. Mobile Lifting Devices

Recommended inspection requirements for mobile lifting devices such as truck cranes, crawler cranes, boom trucks, and fork trucks by frequency are described below.

Manufacturers' guidelines should be consulted for additional details. Industry-standard forms and checklists (paper and/or electronic) may be utilized as appropriate.

Daily Inspection	Mobile Lifting Devices Requirement
Structural	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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

No documentation is required for daily inspections, but it is a best practice to use a daily inspection checklist specific to the equipment (either paper or electronic) to ensure that nothing is missed.

Monthly Inspection	Mobile Lifting Devices Requirement
Structural	<p><i>All daily inspection items <u>and</u> the following:</i></p> <ul style="list-style-type: none"> • 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 etc. • wear on brake and clutch system parts such as linings • pawls and ratchets • load, boom angle and other indicators
Mechanical	<p><i>All daily inspection items <u>and</u> the following:</i></p> <ul style="list-style-type: none"> • 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

Documentation is required for monthly inspections and must include the items checked and their results as well as the name and signature of the person who conducted the inspection. Both paper forms or electronic records are acceptable.

Annual Inspection	Mobile Lifting Devices Requirement
Structural	<p><i>All daily and monthly inspection items</i> including test load, if specified by the manufacturer, <u>and</u> the following:</p> <ul style="list-style-type: none"> • outrigger and outrigger boxes • steering knuckles • boom foot section and lattice boom • boom head • boom hoist • boom sections including sheaves, hooks, blocks, and wedge sockets
Mechanical	<p><i>All daily and periodic inspection items</i> including test load, if specified by the manufacturer, <u>and</u> the following:</p> <ul style="list-style-type: none"> • teardown inspection and lubrication of swivel hook and block assembly at least every 5 years • hooknut disassembled and inspected for corrosion and wear

At least every 12 months, a comprehensive inspection must be conducted. A document including the list of items inspected and the results as well as the name and signature of the person who conducted the inspection must be completed.

B. Inspection of Overhead Cranes

Recommended inspection requirements for overhead and gantry cranes, monorail cranes and underhung hoists, etc. by frequency are described below.

Manufacturers' guidelines should be consulted for additional details. Industry-standard forms and checklists (paper and/or electronic) may be utilized as appropriate.

Inspection requirements for overhead cranes by frequency are as follows:

Daily Inspection	Overhead Cranes Requirement
Visual	<ul style="list-style-type: none"> • All functional operating mechanisms for excessive wear or adjustment needed for with proper operation • Deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of air or hydraulic systems

- Test limit devices
- hooks and latches for deformation, cracks and wear
- Hoist chains, including end connections, for excessive wear, twist, distorted links interfering with proper function, or stretch

No documentation is required for these daily inspections, but it is a best practice to use a daily inspection checklist (paper, electronic, sticker, tag, etc.) to ensure that nothing is missed.

Monthly Inspection	Overhead Cranes Requirement
Documented	<p><i>All daily inspection items <u>and</u> the following:</i></p> <ul style="list-style-type: none"> • Monthly inspections of hooks and hoist chains shall be documented with date, name of inspector, and ID number of the hook/chain inspected • Monthly inspections of all ropes shall be documented with the date of inspection, the signature of the person who performed the inspection and an identifier for the ropes which were inspected • Deformed, cracked or corroded structural members; loose bolts or rivets • Cracked or worn parts such as pins, bearings, shafts, gears, etc. • Excessive wear on brake parts, ratchets, chain drive sprockets, etc. • Gasoline, diesel, electric or other powerplants for improper performance • Electrical systems/controls for deterioration/functionality

Documentation is required for monthly inspections and must include the items checked and their results as well as the name and signature of the person who conducted the inspection. Both paper forms and electronic records are acceptable.

Annual Inspection	Overhead Cranes Requirement
Documented	Performed by a certified third-party inspection service, <i>includes all daily and monthly inspection points <u>and</u> any manufacturer-specific guidelines.</i>

At least every 12 months, a comprehensive inspection **shall** be conducted. A document including the list of items inspected and the results as well as the name and signature of the person who conducted the inspection must be completed.

APPENDIX B – Rigging Equipment Inspection Guidelines

Rigging Inspections

Prior to use, all rigging equipment, fasteners, and attachments **shall** be inspected for damage or defects by a Competent person. Any piece of rigging found to be damaged or defective **shall** be marked as *out of service* immediately and removed from the work area.

See manufacturer’s guidelines for additional details.

Below-the-Hook Lifting Devices

All rigging that is associated with below-the-hook lifting devices **shall** include identification of the manufacturer, weight of the object, and the WLL. Such rigging **shall** not demonstrate any modification that was not by manufacturer design.

Slings


- All slings **shall** have permanently affixed and legible identification markings, and that indicate the WLL for the types of hitches used, the angle upon which it is based, and the number of legs if more than one.
- Slings **shall** be inspected before being used; the sling and all fastenings and attachments **shall** be inspected for damage or defects.
- Slings **shall** receive a thorough documented inspection at least annually.


Specific Rigging inspection requirements by equipment type include:

Chain Slings	<ul style="list-style-type: none"> • Periodic thorough inspections for wear, defective welds, deformation and increase in reach (length) • Certificate for the proof test for each chain sling shall be retained on file • Most recent documented inspection for each chain sling shall be retained on file • Shall have permanently affixed durable identification stating size, grade, rated capacity, and reach • Hooks shall not be cracked, have been opened more than 15 percent of the normal throat opening measured at the narrowest point or twisted more than 10 degrees from the plane of the unbent hook
Synthetic Web Slings	Synthetic Web Slings shall not show evidence of:

	<ul style="list-style-type: none"> • Acid or caustic burns • Melting or charring of any part of the sling surface • Snags, punctures, tears, or cuts • Broken or worn stitches • Distortion of fittings • Knots in any part of sling • Missing or illegible identification tag • Discoloration and brittle area on any part of the sling • Any other condition that causes doubt as to the continued use of the sling
Wire Rope Slings	<p>Wire Rope Slings shall not show evidence of:</p> <ul style="list-style-type: none"> • 10 randomly distributed broken wires in one rope lay or five broken wires in one strand in one rope lay • Wear or scraping of one-third the original, diameter of outside individual wires • Kinking, crushing, bird caging or any other damage that causes distortion of the wire rope structure • Evidence of heat damage • End attachments that are cracked, deformed, or worn • Corrosion of the rope or end attachments
Hooks	<p>Lifting hooks should be inspected for:</p> <ul style="list-style-type: none"> • Cracks, nicks, and gouges • Wear exceeding 10% (or as recommended by the manufacturer) of the original sectional dimension • Any visibly apparent bend or twist of the hook • Any distortion causing an increase in the throat opening of 5%, not to exceed ¼ inch • A safety latch is in place and functions properly
Shackles	<p>Shackles used in lifting should be inspected for:</p> <ul style="list-style-type: none"> • Properly sized fitting pins • Fitting pins that are straight and completely seated • Cracks, deformities, and evidence of heat damage or alterations • Eyes checked for roundness and twisting • Bolt Type Anchor Shackles (BTAS) should be used to secure all overhead equipment such as hoist sheaves

APPENDIX C – Critical Lift Plan

		CRITICAL LIFT PLAN FORM	
Document Number: HSER-SAF-EXE-FRM-069 Version Number: 1.0		Effective Date: 05/01/25 Page 1 of 2	
<p>This lift is deemed a Critical Lift because:</p> <p> <input type="checkbox"/> Greater than 75% of crane's rated capacity <input type="checkbox"/> Lifting over live equipment <input type="checkbox"/> Tandem Lift </p>			
Date of Lift:		Time of Lift:	
Business Unit:		Location:	
<p><u>Description of the work:</u></p> 			
<p><u>Load Details:</u></p> <p>Load Dimensions (HxWxL): _____</p> <p>Weight of Load: _____</p> <p>Comments:</p>			
<p><u>Rigging Details / List of all rigging to be used (continue on reverse as needed):</u></p> <p>Total weight of rigging assembly: _____</p> <p>Rated capacity of rigging assembly: _____</p> <p>Total weight below the hook (load plus rigging assembly): _____</p>			
<p><u>Crane Details</u></p> <p>ID, Description _____</p> <p>Gross Load on this crane _____</p> <p>Maximum lift radius for this crane _____</p> <p>Load chart capacity at this radius _____</p> <p>Total boom length _____</p> <p>* Is electronic load indicator and overload cutoff working and online? Yes or No</p>			
<p>Are soil conditions acceptable for this load/crane/lift? Yes or No</p> <p>Are crane mats required? Yes or No</p> <p>Maximum allowable wind speed is: _____</p>			
Page 1 of 2			

	CRITICAL LIFT PLAN FORM
Document Number: HSER-SAF-EXE-FRM-069 Version Number: 1.0	Effective Date: 05/01/25 Page 2 of 2
Pre-lift meeting held prior to crane operation? <input type="checkbox"/> Yes Contingency Plan needed? Yes or No	
Crane Operator Name: _____	
Expiration Date of Crane Operator License: _____	
Competent Rigger Name: _____	
<u>Approvals to Proceed:</u>	
Crane Operator Signature: _____	
Competent Rigger Signature: _____	
Supervisor Name / Signature: _____	
Page 2 of 2	