Lifting and Rigging

1. Purpose

By following this policy and operating lifting devices in a safe and responsible manner, injuries and property damage can be prevented.

2. Scope

This policy applies to all persons who operate cranes (e.g. mobile, stationary, overhead), aerial cages, any other mechanical lifting devices with associated rigging, and other equipment used for lifting, such as backhoes, excavating equipment, truck-mounted hoists, other hoists, and chain falls. The policy does not apply to forklifts, manlifts, personnel-elevating work platforms, earth-moving equipment, or similar equipment used in its intended manner and without rigging. If any situation arises not specifically covered by this policy, a lifting plan shall be developed and approved by the DOM before proceeding.

3. Minimum Requirements

	Minimum Requirements	Supporting Documentation
1.	Lifts shall be evaluated for their criticality in the planning stage of the job or by the Lift Operator prior to the execution of the lift. All lifts identified as a Critical Lift require a completed Critical Lift Permit.	Sections 7 and 8
2.	All Critical Lift Permits shall be issued by an Asset Operator or Asset Operator Designee and shall be received by a Performing Authority. *Self-permitting is prohibited.*	Section 8
3.	For Non-Critical Lifts, the Authorization to Work form shall be used prior to the execution of the lift. A permit is not required.	Section 9
4.	All individuals serving in roles defined within this policy shall be competent to execute those roles according to this policy.	Section 11
5.	All personnel performing work on behalf of USPL have the responsibility and authority to stop any lifting operation they consider to be unsafe.	Section 6

4. Definitions

Anti-two-block device—A device designed to warn the crane operator that the hook block is about to hit the boom head, which could have serious consequences (damage to the crane or cable breakage, causing the load to fall).

Asset Operator (AO)—A BP employee who is responsible for the operation of the asset where work is being performed. The Asset Operator shall be accountable for the asset equipment being in a safe condition for the scope of work to be performed. The Asset Operator or an Asset Operator Designee (if used) is responsible for the completion of the ATW form.

Asset Operator Designee (AOD)—A BP employee or contractor individual who is authorized to issue ATWs and / or permits on behalf of the Asset Operator.

Note: Reference the Authorization to Work policy for additional information

Chain fall—An example of a hoisting device consisting of a chain suspended from or laid over a fixed structure such as a beam, or on well built saw horses resting on well supported joists used to lift heavy objects, such as steel beams and vehicle engines. Depending on the situation there are many other temporary rigs that be improvised for lifting heavy objects with the tool. This principle is very similar to a block and tackle.

Crane—Power-operated equipment that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., "hammerhead boom"), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment.

Critical Lift—A lift that meets, at a minimum, any of the following conditions:

- Any lift exceeding 75% of the charted capacity of the crane or lifting devices used

  Note: In no case shall the lift exceed 90% of the charted capacity of the crane except when load testing a crane is conducted by or under the direction of a qualified third-party lifting equipment vendor, which does not require a critical lift permit. Load testing shall be risk-assessed as part of the Authorization to Work process.

- Tandem lift with two cranes

  Note: A tandem lift with two cranes does not apply to pipeline lowering or raising on the Right of Way, but it does apply to pipeline pulling associated with a horizontal directional drill regardless of whether cranes or other lifting devices are used.

- Transfer of the load from one lifting device to another
- Lifts utilizing an aerial cage
- Any lift within 20 feet of electrical lines or substations

  Note: In no case shall a lift be conducted closer than 10 feet from an electrical line or substation.

- Any lift exceeding 25,000 pounds
- Use of any boom or boom extension with a combined length greater than 99 feet
- A mobile crane situated on unstable or uneven ground or traveling while carrying a load

  Note: This criteria does not apply to cranes and other lifting devices used for the movement of materials on the Right of Way or facility roadways.

- Lifting operations when they are subject to sudden uncontrolled movement (dynamic lifts), e.g. lifts to or from vessels, boats, barges, etc.

  Note: The collective judgment of those involved in the lift shall be used to determine if conditions exceed normal parameters, making the use of a Critical Lift Permit necessary to verify all personnel are in agreement that a safe lift can be made.

- Lifts involving raising or lowering a load from, into, or over an occupied confined space or building
- If the load passes over any process equipment, exposed live piping in a facility, or a live underwater pipeline

  Note: Connecting hoses to ships and barges is excluded from this criteria.

- Any lift made while a diver is in the water

Free rigging—The direct attachment to or placement of rigging equipment (e.g. slings, shackles, rings) onto the tines of a powered industrial truck (e.g., forklift) for a below-the-tines lift. This type of lift does not use an approved lifting attachment. See 6.P below for additional details.

Job Site—Within visual proximity of the work being performed.

Lifting device—For the purpose of this policy, a mechanical device designed to raise, lower, pull, and/or transfer a load. Lifting devices may be fixed (e.g., overhead floor-operated crane) or mobile (e.g., mobile crane, boom truck). Lifting devices are typically powered (e.g. electric, hydraulic, air) but may be manual (e.g., small hoist, pulley blocks). Lifts are categorized as Critical or Non-Critical. *See* Critical Lift; Non-Critical Lift.

Lift plan—Documents that plan for a safe lift by requiring the appropriate personnel to review and approve all criteria involved in the lift.

Live piping or pipeline—Any piping or pipeline that contains hazardous materials and the valves are open.

Lift Operator—A BP or contract employee who has appropriate experience and formal training (classroom and hands-on) in the operation of stationary or mobile lifting devices and has met the requirement of a Rigger. For offshore operator qualifications, refer to API RP 2D; for onshore operator qualifications, refer to ANSI/ASME B30.

Non-Critical Lift—Lifts that do not meet the definition of a Critical Lift. These lifts are well within the lifting parameters of the equipment over non-sensitive areas using standard rigging arrangements. Typical tasks include repetitive and frequent loading and unloading operations using fixed or mobile equipment, and lifts using on-site equipment attached to a fixed beam (e.g., manual hoists, chain blocks, and beam trolleys).

On-site—Physically being on the property or within the property fence line where work is being performed.

Outrigger blocking—Small supports placed under each outrigger pad to increase outrigger stability. Outrigger blocking shall be at least three times larger in area than the outrigger pad.

Performing Authority—A BP employee or contractor individual who receives a permit issued by the Asset Operator or Asset Operator Designee.

Permit Issuance—The act of the Asset Operator or Asset Operator Designee issuing a permit to a Performing Authority. Permit Issuance is documented in Section C of the ATW form.

Note: Reference the Authorization to Work policy for additional information.

Process equipment—Any equipment that contains hazardous materials, e.g. tanks, pumps, valves, VRUs.

Rigger—A BP or contractor employee deemed a qualified Rigger. The person is skilled in sling and rigging hardware identification and inspection, use of rigging equipment, and basic hitch configurations.

Rigging drawing—A detailed drawing that indicates exactly what type, size, and configuration (including lengths and angles) of rigging is to be used for making a lift.

Rated load—Maximum load designated by the manufacturer for which a crane or individual hoist is designed and built.

Signal Person (Spotter)—A person responsible for communicating with the Lift Operator so the load is lifted, moved, and placed without interference to or from surrounding obstacles.

Shall—Is used where a provision is mandatory.

Should—Is used where a provision is preferred.

5. Roles and Responsibilities

5.1. Asset Operator or Asset Operator Designee

A. Shall issue Critical Lift Permits to the Performing Authority.

Note: Refer to the Authorization to Work policy for additional information on roles and responsibilities.

B. Shall be available (e.g., on-site or by phone) for lifts that will pass over live process lines or equipment in facilities.

C. Shall determine if changes can be made to the permit if permit conditions are exceeded or if the permit should be cancelled and a new permit issued.

   1. If the Asset Operator determines that changes to the permit can be made, he/she shall document their approval of the changes by initialing the changes where they are documented on the permit.

D. Shall review the Level 2 HITRA to verify that the scope is appropriate, permits have been identified and that it has been properly approved.

5.2. Lift Operator

A. Shall verify that overall lift conditions are acceptable.

B. Shall verify that riggers and signal persons understand their roles in the lift.

C. Shall perform the daily pre-use inspection of the lifting devices.

D. Shall review the lift plan and verify all required controls are in place and effective, including the following:

   1. Lifting device is properly positioned.
   2. Equipment is properly configured.
   3. Proper footing is being used.
   4. Proper rigging is being used.
   5. The anti-two-block system is operational (if applicable).
   6. No overhead obstructions exist.

E. Shall remain at the controls while a load is suspended, unless required to by another written policy such as helicopter landings on platforms while a lift in is progress.

F. Shall execute the lift in accordance with the developed lift plan or the equipment manufacturer's operating instructions.

G. Shall obey the signals of the Signal Person (if used) and stops the lift if contact with the Signal Person is broken.

5.3. Performing Authority

A. Shall receive issued Critical Lift Permits from the Asset Operator.

B. Shall verify that all workers involved in the lift have signed the Critical Lift Permit to acknowledge their agreement to abide by the conditions documented on the permit.

C. Shall observe the permitted critical lift to verify that the work is performed within the conditions documented on the Critical Lift Permit.

D. Shall reassess the job site and revalidate the permit before work can resume if permitted work is interrupted or if the job site is left unattended, or if necessary, cancels the permit and returns it to the AO / AOD.

E. Shall stop work, suspend the permit and notify the AO / AOD if permit conditions are exceeded

Note: Refer to the Authorization to Work policy for additional requirements.

5.4. Rigger

A. Shall sling, unsling, and guide loads under the direction of the Lift Operator.

B. Shall conduct visual rigging inspections before and after each lift.

C. Shall inspect loads and verify that the load will be stable when lifted.

5.5. Signal Person

A. Shall function as the sole signaler at any given time (but anyone can give the stop signal).

B. Shall have a direct line of sight of the load and make sure the load never passes over anyone.

C. Shall adhere to a clear, agreed-upon, standard set of signals for communicating with the Lift Operator, or if out of the Lift Operator's direct line of sight uses agreed-upon verbal commands by radio.

D. Shall give proper signals or verbal commands to the Lift Operator to help guide the load along a clear path from initial lift point to final resting point.

E. Shall control the job site access to prevent other personnel from walking under a load.

F. Shall verify that no overhead obstructions exist.

G. Shall guide loads when the Lift Operator does not have a view of the load.

6. General Requirements

A. Manufacturer's labels, e.g. operating instructions, hazard warnings, and rated load capacities, shall not be defaced.

B. Guards and other safety devices shall be in place and operable before any lifting device is used.

C. All personnel performing work on behalf of USPL have the responsibility and authority to stop any lifting operation they consider to be unsafe.

D. People shall not stand, pass, or work directly under a suspended load.

E. The operator shall always stop the engine(s) on any mobile crane before leaving it unattended.

F. Wherever a lift could endanger personnel, a horn or similar warning device shall be sounded to warn personnel in the area that a lift is taking place.

G. Any crane or mechanical equipment capable of having parts of its structure elevated near energized overhead electrical lines shall be operated so that a clearance of 20 feet is maintained or a Critical Lift Permit is required.

H. While making lifts, cranes equipped with outriggers shall have them deployed according to the manufacturer's instructions.

I. On truck-mounted cranes, no loads shall be lifted over the front area except as approved by the crane manufacturer.

J. Signal Persons shall be utilized in the following situations:

1. The Lift Operator cannot see the load.
2. The Lift Operator cannot see the path of travel of either the load or the crane.
3. The Lift Operator cannot see the load landing area.
4. The Lift Operator is too far from the load to judge distance accurately.
5. The lifting device is working within 20 feet of live power lines or equipment.

K. Signal Persons or Riggers shall control access to lift areas when lifts could endanger personnel. No one, except those directly involved with performing the lift, is permitted to enter the area without notifying and receiving acknowledgment from the Signal Person or Rigger.

L. When Signal Persons use hand signals, the hand signals shall be those prescribed by the applicable ANSI standard, and an illustration shall be posted at the job site.

1. The crane operator shall provide and post the hand signal chart.

M. When Signal Persons are used with operators of lift devices other than cranes, the Lift Operator and Signal Person shall agree on the type of hand signals or verbal commands to be used. If a movement is to take place for which a signal or command has not been discussed prior to the operation, the lift shall stop and the appropriate signal or command shall be agreed upon before the lifting operations may resume.

N. When traveling or rotating a crane with a load, a tag or restraint line shall be used if swinging of the load is hazardous, e.g. the load could contact another object or swing out beyond the radius at which it can be controlled. When used near electrical equipment, tag lines shall be a nonconductive type.

O. When other mobile equipment is used for lifting, commercially available or built from an approved engineering design attachment devices shall be used.

P. Free rigging is prohibited. If the lift equipment has the manufacturer approved lifting attachment installed on the tines/forks, it is not free rigging.

Q. Personnel-elevating work platforms shall not be used as cranes.

R. In no case shall the lift exceed 90% of the charted capacity of the crane except when load testing a crane is conducted by or under the direction of a qualified third-party lifting equipment vendor, which does not require a critical lift permit.

S. Cranes in marine terminals shall be fitted with a load indicating device with a direct means to prevent an overload from occurring. This requirement excludes cranes:

1. While used to handle or hold hoses in connection with transfer of bulk liquids or other hose handled products.

2. While used to handle equipment with an actual gross weight less than 11,200 lbs.

T. CFR Title 14 Part 77.9 requires a company to notify the administrator of the FAA where any construction or alteration could interfere with airport flight operations. One criteria states notification is required if the height of a structure or equipment within 20,000 feet of an airport exceeds a 100:1 distance to height ratio. For example, a crane used 2 miles from an airport that is more than 105.6 feet high (5280 ft/mile x 2 miles / 100 = 105.6 ft) would trigger the reporting requirement.

7. Lift Requirements

A. Lifts shall be evaluated for their criticality in the planning stage of the job or by the Lift Operator prior to the execution of the lift.

B. All lifts identified as a Critical Lift require a completed Critical Lift Permit (see Appendix I). Non-Critical Lifts shall be risk-assessed by the Lift Operator as part of the Authorization to Work process.

C. A separate Critical Lift Permit shall be created for each applicable lift except as noted below:

1. A single Critical Lift Permit, based on the worst-case situation, can be used where a crane is making multiple lifts from the same location utilizing the same load travel path.

2. If a crane is moved and then repositioned for a subsequent similar lift, the Lift Operator shall review the Critical Lift Permit to verify the conditions noted on the permit and any accompanying forms are still applicable.

D. A Critical Lift Permit developed during the planning stage of a job and completed except for signatures shall be sent to the job site. The Asset Operator shall verify permit conditions before issuing the permit. The Lift Operator shall verify the permit and any associated forms are accurate and complete. See Appendix VI for a flowchart of the lifting process.

E. Prior to a Critical Lift being made outside, the Lift Operator shall use their judgment to determine the environmental conditions, e.g. wind speed and load configuration, are acceptable for the lift.

F. The Lift Operator shall not be permitted to leave his/her position at the controls while the load is suspended, unless required to by another written policy such as helicopter landings on platforms while a lift is in progress.

8. Critical Lifts

8.1. Critical Lift Permits

A. A lift shall be designated as Critical if it meets any of the criteria listed on the Critical Lift Permit (see Appendix I). A Critical Lift shall be documented with a completed Critical Lift Permit.

B. Depending on the hazards associated with the Critical Lift, the completed Critical Lift Permit shall include the following documents as attachments:

1. An Aerial Cage Lift Plan (Appendix II) shall be completed if an aerial cage is to be used to hoist personnel.

   Note: Detailed requirements for lifts using aerial cages are provided in Appendix V.

2. A Checklist for Lifts near Electrical Hazards (Appendix III) shall be completed if the lift is to take place within 20 feet of live electrical lines or substations.

3. A Checklist for Lifts over Process Equipment or Live Pipelines (Appendix IV) shall be completed if the lift is to take place over process equipment, an exposed live pipeline, or a live underwater pipeline.

C. Critical lifts shall not be attempted without a complete, approved Critical Lift Permit, including, if applicable, attachments such as additional required lift plans or a pre-engineered lift plan. The Lift Operator responsible for the job shall complete the Critical Lift Permit with the assistance of any necessary subject matter experts such as a Rigger or Project Manager.

   Note: If a complex Critical Lift is planned, BP may require a detailed engineering lift assessment or a test lift prior to the execution of the lift.

D. Completed Critical Lift permits and associated attachments per the Lifting and Rigging policy shall remain at the lift site for the duration of the lift.

E. A permit is valid for one work shift for individuals working under the permit, or for the duration of the scope of work documented on the permit, whichever period is shorter.

F. If permit conditions are exceeded, work and the permit shall be suspended until the Asset Operator determines if changes can be made to the permit or if the permit should be cancelled and a new permit issued.

1. If the Asset Operator or Asset Operator Designee determines that changes to the permit can be made, he/she shall document their approval of the changes by initialing the changes where they are documented on the permit.

G. Upon completion of the lift, the original Critical Lift documentation shall be retained locally for a minimum of one year.

8.2. Critical Lift Permit Approvals

A. The BP person responsible for the Critical Lift Permit, whether at a pre-planning meeting or in the field, shall notify the District Operations Manager (DOM) of the proposed permit.

   Note: The DOM may revise future notification requirements based on his/her personal risk assessment (e.g., weekly offloading of supplies offshore may not require notification, but offshore equipment lifts may always require notification).

B. All lift permits shall be approved by the Asset Operator. Approval is indicated by signature on the Critical Lift Permit.

C. By signing the permit, the Asset Operator indicates approval of the Critical Lift to proceed and his/her understanding that the District Operations Manager has been notified.

D. By signing the permit, the Performing Authority acknowledges:

1. their understanding of the permit conditions and precautions,
2. that they will instruct other individuals working under the permit to read and document their understanding of the permit,
3. they will stop work if they become aware of permit conditions being exceeded, and
4. they will notify the AO / AOD upon completion or interruption of the work.

8.3. Pre-Lift Safety Meeting

A. Prior to making a Critical Lift, the Lift Operator shall hold a pre-lift safety meeting at the lift site with all personnel taking part in the lift.

B. The meeting shall include a review the scope of the approved Critical Lift Permit and verification that all personnel taking part in the lift understand their respective roles.

C. The Asset Operator, Performing Authority, Lift Operator if different from the Performing Authority, and, if applicable, the Signal Persons and Riggers shall sign the Critical Lift Permit following the pre-lift safety meeting to indicate that they fully understand the scope of the lift, the permit requirements, and their roles.

9. Non-Critical Lifts

A. For Non-Critical Lifts, the Authorization to Work form shall be used prior to the execution of the lift. A permit is not required.

B. The Lift Operator shall visually inspect the lift equipment (i.e., lifting device, rigging, and hardware) prior to use to verify it is fit for purpose.

10. Offshore Operations

In addition to the other requirements of this policy, offshore operations are subject to the following specific requirements.

A. Before the lift is made, the Lift Operator, the Rigger, and the boat captain shall discuss the permit conditions of the lift.

B. If the Lift Operator is unable to see the load being worked, the Lift Operator shall be aided by a Signal Person.

C. The Lift Operator shall obtain from the shipping manifest all pertinent information about the cargo (e.g. weights, hazardous material) before the cargo transfer begins.

D. Bypassing of the boom kick-out, anti-two-block system, or other safety devices on any crane *is prohibited*.

E. All marine vessel tender operations require deck cargo inventory tracking.

F. Winches and tuggers used to lift or pull shall have an annual documented inspection.

G. Structural members used as anchor points for winches and tuggers shall be approved to handle the anticipated load.

10.1. Operating Cranes near Helicopters

A. When the crane is positioned near a helideck or the approach/take-off zones, a Lift Operator shall:

1. Complete all critical and personnel lifts before leaving the control station, or follow another written procedure allowing a suspended load during helicopter operations.
2. Cease all crane operations while a helicopter is landing, taking off, or in operation on the helideck.
3. Position and secure the boom to prevent interference with the flight operations.
4. Occupy the crane control station during helicopter operations only while in direct radio communication with the pilot.

10.2. Transferring Personnel with the Crane

A. Hoists used to transfer personnel shall have a certificate on file that states: "Approved for Personnel Handling." This certificate shall be maintained in the crane file at the facility.

B. Owners and operators of cranes used to transfer personnel shall follow the recommendations outlined in the most recent editions of API Spec. 2C and API RP 2D, Section 3.4, “Personnel Transfer.” The BP/Contract Field, Facility, or Rig Supervisor shall determine what cranes in his/her area are approved to handle personnel and provide that list on request.

C. A Lift Operator shall follow these procedures when transferring personnel with the crane:

1. Use only hooks with a locking safety latch.
2. Close the safety latch when the load is attached.
3. Control the load in both up and down directions. *No free-fall operations are allowed.*
4. Verify that all personnel transferred with the crane are wearing personnel flotation devices (PFDs).
5. Verify that personnel riding a net-type personnel carrier are standing on the outer rim facing inward.
6. Verify that the weight of the loaded personnel carrier or net does not exceed the personnel rated load as defined by API RP 2C (latest edition) or the manufacturer’s recommended load.
7. Use the following special precautions when transferring personnel between vessels or from a vessel to a platform:
    a) Raise the personnel carrier only high enough off the deck to clear all obstructions;
    b) Swing the personnel carrier over the water;
    c) Raise or lower the carrier in such a manner as to minimize swinging;
    d) Position it slightly above the landing area; and
    e) Gently lower it to the deck.

11. Training and Competency

A. All BP employees serving in roles defined in this policy shall be trained and competent for their assigned roles as specified in the Training and Competency Matrix.

B. All contractors who perform work within the scope of this policy shall understand their specific roles and responsibilities and the purpose and use of the ATW form. The AO / AOD should review the ATW process with contractors during the pre-job meeting.

Note: Refer to the USPL Control of Work Training and Competency matrix for specific training requirements.

12. References

1. ANSI/ASME B30 Safety Standards for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings. *Note:* B30 references a series of standards specific to lifting and rigging equipment.
2. API Spec 2C, “Specification for Offshore Pedestal Mounted Cranes,” 6th ed., 2004.
3. API Recommended Practice 2D, “Operation and Maintenance of Offshore Cranes,” 5th ed., 2003.
4. BP Operating Management System Guide, “Lifting Operations.”
5. OSHA, U.S. Department of Labor, 29 CFR 1926.1400, “Cranes and Derricks.”

Appendix I
Critical Lift Permit

This example of the Critical Lift Permit is for reference only. For a downloadable version of the permit, go to the HSSE website. The electronic version may be filled out online or printed and completed as hard copy.

Permit Number: CL-

(Use the ATW number associated with this job; add an alpha character if more than one Critical Lift Permit is required.)

Critical Lift Permit

(Use mm/dd/yyyy when entering dates. Use hh:mm when entering times.)

bp US Pipelines & Logistics

Critical Lift Determination

	Reason(s) Lift is Critical (Check all that apply)	Additional Required Plans
☐	The lift exceeds 75% of the capacity of the crane or lifting devices used.	Level 2 HITRA not required
☐	This is a tandem lift with two cranes.	Complete lift calculations for each crane.
☐	The load will be transferred from one lifting device to another.	Complete lift calculations for each crane.
☐	The lift will utilize an aerial cage.	Attach Aerial Cage Lift Plan.
☐	The lift will occur within 20 feet of electrical lines or substations.	Attach Checklist for Lifts near Electrical Hazards.
☐	The lift exceeds 25,000 pounds.	Level 2 HITRA not required
☐	The boom or boom extension will extend more than 99 feet combined.	Level 2 HITRA not required
☐	A mobile crane will be on untested or uneven ground or will travel while carrying the load.	
☐	Lifting operations when they are subject to sudden uncontrolled movement, e.g. vessel, boat, barge, offshore installation, etc.	
☐	The load will be lowered into or lifted from or over an occupied confined space or building.	
☐	The load will pass over process equipment, exposed live piping in a facility, or a live underwater pipeline.	Attach Checklist for Lifts over Process Equipment or Live Piping.
☐	The lift will occur while a diver is in the water.	

If any box above is checked, all sections in Required Permit Information below and any additional required plans must be completed.

Required Permit Information

Date: | Location: | Time Issued: am/pm | Time Expired: am/pm

Description of lifting operation (include rigging considerations for asymmetrical loads where center of gravity factors must be taken into account):

Weight of load (lbs): ☐Actual ☐Assessed

Lifting equipment and accessories to be used:
Model:
Capacity:
Unit number (if applicable):
List any lifting equipment accessories, e.g., jib, fly auxiliary blocks, cable to be used:

Lift Calculations (Complete for all Critical Lifts and if necessary to determine if lift is > 75% capacity)

A. Operating Radius ft
B. Boom Length ft
C. Boom Angle °
D. Rated Crane Capacity lbs
E. Equipment Deductions lbs
(e.g., jib, fly, auxiliary blocks, cable)
F. Net Capacity (D − E = F) lbs

G. Load Weight lbs
(Attach weight ticket or certified shipping weight, if applicable.)
H. Rigging Weight lbs
I. Net Weight (G + H = I) lbs
(From load charts)
J. Percent Crane Capacity %
(I ÷ F) x 100 = J (Not to exceed 90%)

K. Slings: Rigging diagram is required if sling angles are 85° or less.

	Configuration	Capacity	Applied Load	% Sling Capacity
1.				%
2.				%
3.				%
4.				%

L. Shackles:

	Configuration	Capacity	Applied Load	% Shackle Capacity
1.				%
2.				%
3.				%
4.				%

M. Miscellaneous Lifting Devices:

	Configuration	Capacity	Applied Load	% Device Capacity
1.				%
2.				%
3.				%

Note: On outrigger cranes, always use blocking under outrigger pads. Where ground conditions are extremely soft, use bearing mats. When possible, set the crane to lift over the area of greatest capacity. On track equipment, set up to lift with the tracks perpendicular to the load when possible.

I have completed or checked the lift calculations and believe the calculations are correct for the lift equipment specified.

Lift Operator (print and sign):

Permit Number: CL-

Site Plot Plan
Sketch (plot and elevation) site features and equipment, indicating the lifting device location, load location, load destination, aboveground obstructions in lift path (e.g., power lines, light poles, buildings), and known ground and belowground factors (e.g., soft or water-logged ground, buried utilities, culverts).

Any Additional Precautions	
Lift Operator has judged the environmental conditions, e.g. wind speed and load configuration, to be acceptable.	☐ Yes
Additional Precautions:	

Authorizing Signatures

Asset Operator or Asset Operator Designee

I have reviewed the completed permit, and based on my review of the documented conditions with respect to the scope of work and affected equipment, I believe it is appropriate for the work to proceed. Further, it is my understanding that the District Operations Manager has been notified and is aware of this lift.

Asset Operator or Asset Operator Designee (print and sign):

Performing Authority

I have read and understand the above conditions and precautions. I understand my responsibility to instruct individuals performing work under this permit to read and to document their understanding of this permit. I've discussed the lift with the Lift Operator, he / she agreed with the conditions documented on the permit. I understand my responsibility to stop work if I become aware that conditions of this permit are exceeded and to notify the AO / AOD upon completion or interruption of this work.

Performing Authority (print and sign):

Others Involved in Lift
(Print and sign your name to indicate understanding of the scope of the lift, the permit requirements, and your role):

Rigger: **Rigger:**

Signal Person: **Signal Person:**

Attachments (Check all that apply)

☐ Additional lift calculations	☐ Checklist for Lifts near Electrical Hazards	☐ Pre-engineered lift plan
☐ Aerial Cage Lift Plan	☐ Checklist for Lifts over Process Equipment or Live Pipelines	☐ Other

Page 2 of 2

Appendix II
Aerial Cage Lift Plan

Aerial Cage Lift Plan

Note: This completed Aerial Cage Lift Plan must be attached to the Critical Lift Permit and must be maintained by the AO / AOD for the duration of the covered lift.

Job Name: _____ Date: _____ (Use mm/dd/yyyy)

Lift Description: _____

1. Brief description of the aerial cage lift and why this is the least hazardous method of accessing the work location:

2. A pre-lift safety meeting must be held to discuss hoisting procedures for the particular job to be done. All attendees must sign below where appropriate.

Lift Operator: _____ Signal Person: _____

Cage Occupant: _____ Tagline Operator: _____

Cage Occupant: _____ Tagline Operator: _____

Cage Occupant: _____ HSE Representative: _____

3. Prior to the hoisting operation, a Trial Lift/Proof Test must be conducted as follows (refer to Appendix V, Section 5, of the Lifting and Rigging safety policy and to the lift plan):

	Test 1	Units	Test 2 (if crane is moved, or the lift route is changed)
a. Longest Radius during Trial Lift/Proof Test		ft.	
b. Corresponding Boom Length		ft.	
c. Corresponding Boom Angle		ft.	
d. Rated Capacity at Longest Radius		lbs.	
e. Equipment Deductions (i.e., jib, fly, block, rope, etc.)		lbs.	
f. Net Capacity (d – e = f)		lbs.	
g. Weight of Cage, Workers, Tools, and Equipment		lbs.	
h. Percent of Crane Capacity (g ÷ f X 100, ≤50%)		%	

Note: After the Trial Lift/Proof Test, a visual inspection of the crane rigging, platform, and supporting ground shall be conducted to determine whether the testing exposed any defect or produced any adverse effect upon any component or structure, e.g. hoist ropes are free of kinks, multiple part lines are not twisted around each other, taglines are unobstructed, hoist drum lines are seated on drums and sheaves, the platform is level, and stabilizing mats are under outriggers.

I have reviewed and approved this plan.

Performing Authority (print and sign): _____ **Date:** _____ (Use mm/dd/yyyy)

Revision date: July 8, 2014

Appendix III
Checklist for Lifts near Electrical Hazards

Checklist for Lifts near Electrical Hazards

Note: Attempts should be made to de-energize electrical lines prior to the lift. If this is impossible or impractical, all requirements set forth in this form must be met before the lift is executed.

Note: This completed checklist must be attached to the Critical Lift Permit and must be maintained by the Performing Authority for the duration of the permitted lift.

Job Name:

Performing Authority:

Minimum Acceptable Approach Distances

Required Clearances from Live Electrical Lines	
Nominal Voltage, kV (Phase to Phase)	Minimum Required Clearance ft.
up to 50	10
over 50 to 200	15
over 200	20

(From OSHA 29 CFR 1926.1408)

Requirements:

		Yes	N/A
1	An on-site pre-lift meeting has been held with everyone involved in the lift to discuss their role, and permit conditions and precautions.	☐	☐
2	Taglines are nonconductive.	☐	☐
3	A Signal Person has been designated to direct the lift.	☐	☐
4	The Signal Person's sole responsibility is to verify that the required clearance is maintained.	☐	☐
5	Personnel have been instructed not to touch the crane unless the Signal Person indicates that it is safe to do so.	☐	☐
6	The lift has been planned so that lifting will not be over energized power lines.	☐	☐

Form valid:

From: ☐ AM ☐ PM on (mm/dd/yyyy) To: ☐ AM ☐ PM on (mm/dd/yyyy)

Signatures (print and then sign name):

AO/AOD: Electrical Supervisor: (if applicable)

Lift Operator: Power Company Representative: (if applicable)

Signal Person(s): Rigger(s):

Appendix IV
Checklist for Lifts over Process Equipment or Live Piping

Checklist for Lifts over Process Equipment or Live Piping

Note: This checklist must be completed if the load passes over any process equipment, exposed live piping in a facility, or live underwater pipelines. The Asset Operator / Asset Operator Designee must complete and sign the checklist before the lift takes place. The completed checklist must be attached to the completed Critical Lift Permit and must be maintained by the AO / AOD for the duration of the permitted lift.

Job Name: **Lift Date:**
(Use mm/dd/yyyy)

The following items must be completed during the job planning phase.

- ☐ All alternatives, if any exist, for making this lift have been evaluated, and none is considered practical.
- ☐ Operations has reviewed and understands the scope of the lift in question.
- ☐ All isolation valves have been identified and are accessible for the live processes or pipelines over which the lift will take place.
- ☐ The lift area has been evaluated with respect to personnel placement to reduce exposure in case the load is dropped.
- ☐ Evacuation routes have been evaluated for potentially affected personnel in case the load is lost.
- ☐ Operations has developed a plan of action covering response in case the load is lost.

The following items must be completed prior to the lift.

- ☐ Wind direction has been evaluated for its effects on potentially leaking product in the event of a damaged or lost load.
- ☐ The plan of action for a damaged or lost load has been reviewed.
- ☐ Evacuation routes have been explained to all individuals involved with the lift in the event of a damaged or lost load.
- ☐ Personnel downwind of the lift have been notified of the lift in progress or cleared from any potential hazard area.
- ☐ An Asset Operator trained in the equipment being lifted over has been designated to remain available (e.g. on-site or by phone) for the duration of the lift.

Signature (print and then sign name): **How to Contact:**
Asset Operator / Asset Operator Designee

Appendix V
Aerial Cages

1. Aerial Cage Use

A. The use of aerial cages will be permitted only when other conventional means of reaching the job site such as ladders or scaffolding, are impossible or would be more hazardous than an aerial cage. The Performing Authority responsible for the job will determine the least hazardous means of access to an elevated location. The choice of appropriate access will be based solely upon safety criteria and not expediency, manpower, or cost.

B. Aerial cages will not be used as elevators when other appropriate access is available.

C. The aerial cage shall not be loaded beyond its rated load capacity or maximum intended load. Additionally, the total weight of the loaded cage and its associated rigging shall not exceed 50% of the rated capacity for the radius and configuration of the crane at its longest reach.

D. Cranes used for lifting aerial cages shall be equipped with an operational anti-two-block device to prevent contact between the ball and the boom tip. Bypassing the anti-two-block device is not permitted when an aerial cage is utilized.

E. The aerial cage manufacturer's limitations about the number of people lifted at one time shall be followed. Radio contact between the Lift Operator and the personnel in the basket shall be maintained at all times. One person in the cage, so appointed, shall utilize the ANSI hand signals to communicate with the Lift Operator in the event of radio failure. If the Lift Operator cannot see the personnel in the cage, then a Signal Person shall be appointed and stationed in a position that provides a clear view of the aerial cage and the Lift Operator.

   1. Other than when giving hand signals, occupants of the cage shall keep all parts of their bodies inside the cage during raising, lowering, and positioning.

   2. Each employee working out of a cage shall wear a safety harness with a lanyard attached to the cage and with no more than a 6 foot lanyard.

F. Materials and tools for use from a suspended cage will be evenly distributed throughout the cage and will be secured to prevent displacement during raising, lowering, and positioning.

G. Before employees exit or enter a hoisted cage that is not landed, the platform will be secured to the structure to be worked on unless securing it to the structure will create an unsafe situation.

H. The crane operator shall remain at the machine's controls at all times when the crane is running or the cage is occupied.

I. Hoisting shall be discontinued upon any indication of unsafe conditions.

J. Hoisting of employees while the crane is traveling is prohibited.

K. Aerial cages designed and constructed for hoisting personnel shall be used only for lifting employees, their tools, and the materials necessary to do their work. Aerial cages shall not be used to hoist unaccompanied materials or tools.

L. Before personnel are hoisted, the Critical Lift Permit with the Aerial Cage Lift Plan (see Appendix II) shall be completed. These documents shall be filed for a minimum of one year with the Document Control Specialist.

M. Load and boom hoist drum brakes, swing brakes, and locking devices such as pawls or dogs (if so equipped) shall be engaged when the occupied cage is in a stationary working position.

2. Aerial Cage Rigging

A. A sling shall be attached from the crane load-bearing cable, above the ball or hook, to the aerial cage frame.

B. All eyes in wire rope slings shall be fabricated with thimbles.

C. Two 3/8-inch (minimum) taglines shall be tied to opposite sides of the cage to guide the cage and prevent its swinging. Each tagline will be handled by one employee (minimum) on the ground or on a stable platform deck.

3. Aerial Cage Pre-Lift Safety Meeting

A. Prior to lifting any personnel in an aerial cage basket, a pre-lift safety meeting shall be conducted by the responsible Performing Authority and include, at a minimum, the Lift Operator, aerial cage occupants, Signal Person, Rigger, and an HSE representative. The pre-lift safety meeting shall be repeated each day, each time the crane is moved to a new location, and each time a new individual is involved with the lift.

B. The purpose of the pre-lift safety meeting is to review the scope of the lift and to verify that all individuals taking part in the lift understand their respective roles and responsibilities, as assigned by the responsible Performing Authority.

C. During the pre-lift safety meeting, a trial lift shall be conducted, as outlined in Section 5 below, and witnessed by all pre-lift safety meeting attendees.

D. The Lift Operator, cage occupants, Signal Person(s)/Rigger(s), persons manning the taglines, and an HSE representative shall sign the Aerial Cage Lift Plan following the pre-lift safety meeting and trial lift indicating they have witnessed or participated in the trial lift and fully understand the scope of the lift and their roles as noted below:

1. The Lift Operator shall:
    a) Verify proper positioning of lifting device.
    b) Verify proper equipment configuration (i.e., boom length/radius, boom attachments, jib angles, parts of cable)
    c) Verify that all necessary parts of the cable are present.
    d) Verify that proper footing exists.
    e) Verify that no overhead obstructions exist.
    f) Verify that proper rigging exists.
    g) Verify that the anti-two-block device is operational.
    h) Verify that the overall lift conditions are acceptable.
2. The aerial cage occupant(s) shall:
    a) Verify the scope of work to be conducted from the basket.
    b) Verify radio contact with the Lift Operator.
    c) Verify their understanding of hand signals to be used in the event of radio failure.
3. The Signal Person(s)/Rigger(s) shall:
    a) Inspect the rigging and verify that it is acceptable.
    b) Control job site access.
4. The personnel assigned to man the taglines shall:

a) Verify that they understand the travel path of the basket.

b) Maintain control of the basket at all times and prevent obstructions from interfering with the taglines.

5. The HSE representative shall:

a) Review the scope of the lift and verify that all safety concerns of those involved with the lift have been addressed prior to the execution of the lift.

E. Following the pre-lift safety meeting and the aerial cage trial lift, the Performing Authority shall sign the permit, indicating that all requirements of this policy have been met and the lift may proceed as planned.

4. Aerial Cage Trial Lift/Proof Test

A. At each job site, the aerial cage shall be put through a trial lift before personnel are hoisted. The trial lift shall be performed by loading the unoccupied cage to a minimum of 125% of its rated capacity and moving the cage to each work position to be reached from the crane set-up.

B. After the trial lift/proof test, the cage shall be suspended a few inches above the ground and inspected by the Rigger to verify it is secure and properly balanced. Employees shall not be hoisted unless the following conditions exist:

1. Hoist ropes are free of kinks.

2. Multiple part lines are not twisted around each other.

3. Taglines are unobstructed.

4. Hoist lines are seated on drums and sheaves.

5. Platform is level.

6. Stabilizing mats are under outriggers.

C. The crane rigging, cage, and supporting ground shall be inspected by the Lift Operator for any adverse conditions produced by the trial lift.

D. Any defects found during or after the trial lift shall be corrected and the trial lift repeated before approving the Aerial Cage Lift Plan.

E. The trial lift shall be performed whenever the crane is moved and set up in a new location or returned to a previously used location. Additionally, the trial lift will be repeated when the lift route is changed unless the Lift Operator determines that the route change is not significant.

Appendix VI
Lifting Flowchart