- ✓ CHECK often to ensure the crane is level. You can use the hoist line as a plumb bob to check if the crane is level.
- ✓ IF "ON OUTRIGGERS," be sure the beams are fully extended, the tires are just above the ground, and that the pads are pinned. Never block under the outrigger beams inside the pads.
- ✓ IF "ON RUBBER," be sure tires are in good condition, meet manufacturer's specifications, and are properly inflated.
- ✓ IF "ON CRAWLERS," block the ends of the crawlers (if necessary) to keep the crane from tipping, sinking, or rocking.
- ✓ IF "ON STABILIZERS," make sure the beams are fully extended.
- ✓ Maintain a safe distance around the work site – especially behind the crane.
- ✓ Use properly maintained, correctly assembled, undamaged rigging equipment.
- ✓ Remove defective rigging from service immediately.
- ✓ Be alert for two-blocking when telescoping booms.
- ✓ Make sure slings have been inspected and replaced if damaged.
- ✓ Keep away from slings under tension – they can snap back and hit you!
- ✓ Follow manufacturer's recommendations when leaving the crane unattended or shutting it down at the end of your shift. Lower the load to the ground, place all controls in "neutral," disconnect the master clutch or shut down the engine, and set all brakes and locking devices.
- ✓ Plan every lift. Make sure you know the weight of the load and the path of travel.
- ✓ Be sure all materials are secure before making a lift.
- ✓ Control all loads with tag lines.
- ✓ Hoist loads slowly.
- ✓ Lower loads slowly.
- ✓ Apply brakes gradually.
- ✓ Release loads slowly.
- ✓ Know the division of the sweep area in quadrants.
- ✓ Do not swing loads rapidly.
- ✓ Do not allow booms or loads to touch structures.
- ✓ Do not exceed the safe working load of the rigging.
- ✓ Do not allow boom tips to rest on equipment to be lifted. This can cause compression damage and result in backward collapse of booms.
- ✓ Do not work under a suspended load, and stay clear of them until they're safely landed and blocked.

Arrive Home Alive

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Crane Safety for Contractors

Best Practice Series BP-21

Contractors performing services or construction at a mine fall under the jurisdiction of the Federal Mine Safety and Health Act of 1977 (Mine Act). This means that contractors must comply with the Mine Act and the safety and health standards contained in Title 30 Code of Federal Regulations (30 CFR).

The Mine Safety and Health Administration (MSHA) is the Federal agency which administers the provisions of the Mine Act and enforces its requirements. MSHA issues citations and orders to independent contractors for violating safety and health laws. Each violation cited will result in the assessment of a civil penalty.

Contractors who perform work on mine property must be informed of hazards that exist on the property and are specific to the mine's operations.

Contractors and contractor employees have been injured and killed while performing construction or maintenance work.

Remember to:

- Conduct work area examinations.
- Make sure equipment is safe to operate.
- Watch for power lines.
- Pre-plan lifts.
- Pay attention to blind spots.
- Use a signalman when visibility is obstructed.

The following safety tips are designed to help you work with and operate cranes more safely. These items are generic and applicable to most types of cranes.

GENERAL SAFETY

- ✓ Pay attention to the surrounding work area. Mining activity is constantly changing, and your crane can become unstable without you noticing it!
- ✓ Follow all safety rules and procedures – shortcuts can kill.
- ✓ Conduct a work area safety inspection, and report any unsafe conditions immediately. Remove any defective equipment from service. Be sure the crane's log is up-to-date.

CRANE CAPACITY

- ✓ Use the machine's load chart to determine the lift capability for any loads you intend to lift, and follow all manufacturer's recommendations.
- ✓ Determine the crane's load radius.
- ✓ Adjust the crane's capacity by knowing the quadrant of the operation.
- ✓ Do not use signs of tipping to determine if a load is within your crane's capacity.

BOOMS, BLOCKS AND LINES

- ✓ Block boom sections when assembling them.
- ✓ Be sure all boom insert connection pins are installed before raising any boom being assembled.
- ✓ Check telescopic booms for sway, droops, cracks, etc.
- ✓ Be sure all wire rope is in good condition.
- ✓ Be sure there is enough "parts of line" to safely lift the load.
- ✓ Check conditions of all boom hoist ropes and sheaves.
- ✓ Check reeving in blocks to make sure it is symmetrical.
- ✓ Do not get under a boom that is being repaired, assembled, etc. It can fall with no warning.
- ✓ Do not use boom sections with bent lattice members.
- ✓ Do not use a boom with damaged or bent chords.

PRE-OPERATION CHECK

- ✓ ALWAYS before starting your shift check the crane's:
  - Lubrication
  - Fuel and fluid levels (look for leaks)
  - Air tanks for proper pressure and relief pressure
  - Safety devices
  - Brakes and clutches
  - Components used to lift, swing, and lower boom and loads
  - Wire ropes, sheaves, drums, and rigging hardware
  - Free rotation of all swivels
  - Operating mechanisms and instruments NOTE: Replace any loose bolts.
  - Boom and jib components
  - Length marked on all boom inserts
  - Outriggers when equipped to make sure they are in good condition
  - Guards
  - Operator's cab to make sure it is clean
  - Fire extinguisher to make sure it is charged and accessible
  - Tires
- ✓ ALWAYS make sure before operating your crane:
  - The area around your machine is clear before starting the engine.
  - All gauges and controls are "normal" after the machine warms up.
  - All controls work properly.
  - The air system works properly.

WORK PRACTICES

- ✓ Follow manufacturer's recommendations when using a crane.
- ✓ Plan ahead, and determine possible hazards such as power lines and high winds.
- ✓ Use a signalman if the operator can't see the load, load landing area, path of travel, or when the load is far enough away from the operator to make judgment difficult.
- ✓ Watch out for power lines. Use a qualified signalman when the crane is within a boom's length of the lines.
- ✓ Pay attention to ground conditions. Use heavy duty blocking with a large bearing area to keep the crane from sinking. Avoid excavations, trenches, shoring, etc. – they can collapse without warning.