

**Safety
Talk**

Propane Industry Safety Talks

Mobile Crane Safety





Table of Contents

This document includes *Safety Talks* relevant to *Mobile Crane Safety*. A comprehensive set of all 45 *Safety Talks* is also available. The number that precedes each *Safety Talk* indicates the document number; the number following the dotted line indicates page sequence.

MOBILE CRANE SAFETY SAFETY TALKS

1. Using Personal Protective Equipment (PPE).....	1
2. Using and Maintaining Fire Extinguishers	2
3. Basic Fire Prevention Rules and Procedures	3
4. Personal Risk Assessment.....	4
10. Safe Driving Practices	5
11. Selecting Safe Delivery Routes and Protecting Property.....	6
12. Handling Vehicle Accidents and Emergencies.....	7
13. Entering and Exiting the Truck.....	8
40. Mobile Crane Safety: Crane Transport	9
41. Mobile Crane Safety: Rigging	10
42. Mobile Crane Safety: Site Assessment	11
43. Mobile Crane Safety: Crane Operator Requirements	12
44. Mobile Crane Safety: Overhead Power Line Safety	13
45. Mobile Crane Safety: Daily Inspections	14



Safety Talk

Using Personal Protective Equipment (PPE)

Personal Protective Equipment (PPE) plays an important role in ensuring your safety when handling propane. While OSHA sets out certain employer requirements, it is your responsibility to know which PPE is required for specific tasks, how to use it appropriately, and secure it for your assignment. Always follow manufacturer and employer guidelines on the equipment's purpose, limitations, proper fit, and maintenance.

COMMON PPE AND TYPICAL USES INCLUDE:

- Head and face protection, including face shields, protective goggles, and hard hats** — used for welding, chipping, grinding, drilling, or using air-powered tools for breaking concrete or hard surfaces. Goggles are also required for dispensing propane or repairing tanks, as leaking gas can be harmful to eyes. Hard hats are necessary during tank installations/moves or when working in crawl spaces or other small areas where irregular structures can cause head cuts or bruises.
- Earplugs** — required any time steady or impulse noise levels are higher than 85 decibels, such as when using jackhammers. See your company's measures and guidelines.
- Respirators** — vital in removing harmful substances from the air or supplying breathable, clean air. Consult relevant Safety Data Sheets (SDSs), your company's procedures, or your supervisor for which type of respirator to use with your specific task.
- Hands, arms, and feet protection, including gloves and work boots** — required when dispensing or transferring propane, moving tanks or cylinders, handling pipes, or cutting or welding.

Depending on your work area or job function, your employer may require additional protection. If you are unsure of the proper PPE to use for a particular task, ask your supervisor.

SECURING, USING, AND MAINTAINING PPE:

- It is the job of everyone at your site to clean, store, and maintain PPE properly so that it is readily available when needed. Follow your employer's guidelines.
- Remove and report any damaged, cracked, or otherwise compromised PPE to your supervisor immediately, and request replacement.
- Check and follow manufacturer and employer protocols for cleaning and repairing PPE.
- Your safety is top priority. Advise your supervisor if you believe additional PPE is required or helpful for a particular task.

Discussion Topics

1. Whose responsibility is it to ensure you have the correct PPE for your job?
2. What should you do if you arrive at a job site and no PPE is available?
3. Is it acceptable to use PPE that is in poor condition if it is the only available PPE on site?

LEARNING ACTIVITY

Set up a number of scenarios where PPE is necessary. Have participants explain which PPE is necessary for which tasks and why.

Source: *Basic Principles and Practices of Propane* (PERC)

For more information about using personal protective equipment, visit propanesafety.com.



Safety Talk

Using and Maintaining Fire Extinguishers

Because propane is flammable, fire extinguishers must be available at all facilities and on all vehicles. They can keep a small incident from becoming a major accident. It is important that all workers and operators understand how to maintain and use fire extinguishers, in the event of a safety-related issue.

THINGS TO KNOW ABOUT FIRE EXTINGUISHERS:

- ✓ NFPA 58 requires at least one fire extinguisher be available at a bulk propane plant. Multiple extinguishers are a good idea in a large or spread-out facility.
- ✓ OSHA requires that employees be trained to use fire extinguishers when they are first hired and every year thereafter. Advise your supervisor if you are due for training.
- ✓ Fire extinguishers are vital for creating escape routes or for small fires, such as those involving combustible materials. They are not intended to put out a large blaze or propane fire.
- ✓ Make sure no propane leaks are present when using a fire extinguisher.

UNDERSTANDING FIRE EXTINGUISHER RATINGS:

- ✓ Fire extinguishers are rated by the NFPA by the class(es) of fire they are suitable for suppressing. Most extinguishers carry multiple ratings.
 - Type A: Paper, wood, or other similar fires
 - Type B: Flammable liquid or propane
 - Type C: Electrical
- ✓ Per NFPA 58, all propane delivery vehicles should carry one portable fire extinguisher having a minimum capacity of 18 lb. of dry chemical with a B:C rating. Check your local or state codes if they require a higher rating.

STORING, INSPECTING, AND MAINTAINING FIRE EXTINGUISHERS:

- ✓ Know the location(s), condition, and limitations of all fire extinguishers at your plant or on your vehicle.
- ✓ **Monthly Inspections** — Every propane facility must verify that fire extinguishers are intact and fully charged each month. Check with your supervisor for your site's schedule.
- ✓ **Annual Inspection** — Once a year, all units must be inspected by a fire inspection company or the fire department. These agencies will affix a special tag to the extinguisher, showing the test date.
- ✓ It is your job to frequently check the fire extinguisher in your work area or on your service vehicle. If the extinguisher is due for inspection, low on charge, damaged, or missing an inspection tag, notify your supervisor immediately.

Discussion Topics

1. You are ready to leave for a job site and notice that your vehicle's fire extinguisher is missing. How should you respond?
2. What could occur if you use a fire extinguisher not rated for the specific incident?

LEARNING ACTIVITY

Conduct a demonstration on the proper use of extinguishers for various types of fires. Cover specific suppression strategies applicable to paper, electrical, or propane incidents.

Source: *Basic Principles and Practices of Propane* (PERC)

For more information about using fire extinguishers, visit propanesafety.com.



Safety Talk

Basic Fire Prevention Rules and Procedures

Because propane is flammable, everyone involved in its handling must know and follow fire prevention and containment rules at all times. Your knowledge will help protect against property damage and ensure the safety of you and your customers.

RULES TO FOLLOW WHEN WORKING WITH PROPANE:

- ✓ Observe all fire prevention signs posted at the plant and warnings marked on containers with flammable material.
- ✓ Note the location of emergency shutdown controls and fire extinguishers at the plant and on the truck.
- ✓ Never block access to fire control equipment, including fire alarms, fire extinguishers, sliding fire doors, fire escapes, and sprinklers.
- ✓ Know how to use the fire extinguishers and inspect them frequently to verify they are properly sized, properly rated, and fully charged.
- ✓ Keep all ignition sources — including cigarettes and open flames — away from propane transfer areas. Never turn on or off any electrical switch in the area of a propane discharge. If power must be turned off to avoid a fire, turn it off from the circuit breaker in another location not affected by the discharge.
- ✓ Know the telephone number of the local fire department.
- ✓ Report any leak to your supervisor immediately.

STEPS TO FOLLOW WHEN A FIRE OCCURS:

In the unlikely event of a fire or an uncontrolled propane leak, remain calm and take the following steps, if it is safe to do so.

- ✓ If there is an emergency shutdown device, activate it.
- ✓ Immediately eliminate any sources of ignition.
- ✓ Evacuate the immediate area, contact the fire department, and do not re-enter until it has been determined safe. Move and stay upwind of a propane leak, fire, or vapor cloud.
- ✓ Shut off the electrical power at the main power source.
- ✓ If the fire involves a propane delivery vehicle on a highway, block off the roadway at least 2,500 feet in both directions from the accident.
- ✓ Contact your supervisor from a safe location. Do not approach the fire.
- ✓ Evacuate the area and wait for fire fighters to arrive.

Discussion Topics

1. How do you verify your plant's extinguishers are fully charged?
2. There is a fire at the plant and you left the area but realize you did not activate the emergency shutdown device. What should you do?

LEARNING ACTIVITY

Set up a situation with potential hazards (incorrect signs, missing fire extinguishers, etc.). Have participants identify problems and discuss what may occur if these issues are not remedied.

Source: *Propane Delivery Operations and Cylinder Delivery* [PERC]

For more information on fire prevention rules and procedures, visit propanesafety.com.



Safety Talk

Personal Risk Assessment

Being safe at work is a right and responsibility of all propane personnel. To ensure the safety of you and those around you, it is essential that you perform a personal risk assessment before starting any task. This will help you determine what precautions you need to take and prevent possible accidents or injuries.

SURVEY YOUR SURROUNDINGS AND REMOVE POTENTIAL HAZARDS:

As you prepare for your task, ask yourself:

- Is the equipment heavy? Can it tip over? Can I slip and fall or injure myself in any way?
- Will I be safe in completing this on my own, or do I need help with this job?
- If something were to fall, tip, catch fire, etc., would I be close enough to be affected?
- What is the worst that can happen?

If you believe the task could cause personal injury, secure tools to help reduce or eliminate your risk. Always determine the safest way to do the job before you begin.

CONFIRM YOUR TRAINING IS SUFFICIENT:

If you have not been trained to perform a task, do not attempt it. In every situation, confirm:

- Have I been trained to safely do this job?
- Am I confident I have the knowledge and skills to perform this task?

If you are not comfortable with the task you are to perform, talk with your supervisor. If you discover something that you don't understand while performing a task, stop and get help.

USE THE CORRECT TOOLS AND WORK TECHNIQUES:

- Make sure you have the right equipment to do the job and that it is in good working order.
- Once your work equipment is ready, determine what personal protective equipment (PPE) is necessary to do the job safely and use it.
- Make sure you understand the proper techniques to employ for any given scenario. This includes getting in and out of the cab; getting onto and off of the truck bed; moving cylinders, materials, and equipment; and walking and working on various surfaces.

Any issues encountered as you go through these checklists should be addressed prior to carrying out any task.

Discussion Topics

- 1.** A new task must be completed, but you have not been trained for it. The steps are very similar to other tasks that you perform, and you are confident you can handle this one. Your company is also short-staffed. How do you proceed?
- 2.** Discuss how to determine what PPE is required for various scenarios.

LEARNING ACTIVITY

Stage a work environment with a few unusual elements. Have participants conduct their pre-task surveys and review any special issues.

Source: *Propane Personal Safety* (PERC)

For more information about assessing and managing personal risk, visit propanesafety.com.



Safety Talk

Safe Driving Practices

Safe driving practices are a must for propane delivery drivers. Since your vehicle is larger and heavier than most other on-road vehicles — and you have a higher center of gravity — you need to know how to maintain vehicle control; drive safely; and manage accidents, breakdowns, or emergencies quickly.

DEFENSIVE DRIVING TIPS:

- ✓ Before setting out, note any issues with your route, surrounding area, or weather conditions. Schedule appointments with these in mind.
- ✓ Keep a safe following distance between you and the vehicle in front of you.
- ✓ Understand how to accommodate load and suspension shifts and manage skids.
- ✓ Check your blind spots often, keep your eye on other drivers by using your mirrors, and use your lights or horn as needed to make other drivers aware of your presence.
- ✓ Keep your vehicle well serviced to ensure proper tire pressure and condition.

BE COGNIZANT OF ROAD CONDITIONS:

Adverse weather and road conditions can be especially hazardous. Be alert and cautious as you manage your vehicle. When driving in poor conditions, remember to:

- ✓ Clean the vehicle's windows before heading out, and use your wipers and defroster as needed.
- ✓ Turn on your headlights and marker lights.
- ✓ Reduce speed, increase your following distance between vehicles, and pay close attention to other motorists.

ADDITIONAL WAYS TO REDUCE RISKS:

Combined with a high center of gravity, liquid surges and suspension shifts can cause changes in vehicle performance or loss of vehicle control, which could result in a rollover. To reduce risks:

- ✓ **Distribute the weight of cargo evenly.**
- ✓ **Monitor tire pressure and condition.** Excessive wear or improper inflation can increase risk. In the case of a blowout, steer your vehicle in a straight line, then reduce power and gradually brake as you steer out of traffic lanes.
- ✓ **Regain control of the vehicle before making any change in direction or speed.** Regain control of the vehicle before reducing speed, and then apply controlled braking. If possible, gradually maneuver completely off the road and onto the shoulder.
- ✓ **Compensate for blind spots.** Larger vehicle size and higher center of gravity result in blind spots to the sides and rear. Check mirrors frequently, use turn signals, and maintain proper lane location. Consider blind spots whenever backing the vehicle to ensure your cylinder delivery vehicle or bobtail will not strike anything.

Discussion Topics

1. Inclement weather is creating hazardous conditions in transit to a customer site. How should you handle this situation?
2. What should you do in the event of a tire blowout?

LEARNING ACTIVITY

Review the various sources available to propane drivers for gaining information on road and weather conditions. Discuss situations where it is safe to proceed to the next job site versus those that are not.

Source: *Propane Delivery Operations and Cylinder Delivery* [PERC]

For more information on safe driving practices, visit propanesafety.com.



Safety Talk

Selecting Safe Delivery Routes and Protecting Property

As a propane delivery driver, you are responsible for protecting people and property in the course of your job. The following tips can supplement your company's safety plan and help you prevent any unnecessary issues.

PLANNING AND SETTING OFF ON YOUR ROUTE:

- ✓ **Plan for the issues of delivery vehicles** — Know the height and weight of your vehicle and any bridges or road sections that require extra safety measures.
- ✓ **Drive with caution and vigilance** — Follow all recommended instructions at railroad crossings and drawbridges and posted hazmat route signs, and be prepared for any detours due to local restrictions.
- ✓ **Adjust for weather** — Maintain speed appropriate for conditions. Plan ahead if you need to change your route for easier travel, and make customer appointments accordingly.

Vehicle flashers must be used at all railroad crossings and any time the vehicle is stopped except for routine traffic stops.

PROTECTING CUSTOMER LANDSCAPING, PROPERTY, AND STRUCTURES:

You will encounter a variety of issues and obstacles in day-to-day deliveries and service. Understand the size and restrictions of your vehicle, and always exercise good judgment.

- ✓ Keep your vehicle on roadways, driveways, or surfaces adequate to support its weight.
- ✓ **Avoid attempting travel over small private bridges or culverts** — Park your vehicle and use a dolly to transport cylinders to the delivery location. If you're driving a bobtail, use the full length of the delivery hose to reach across the bridge to the LP-gas containers. Be aware of landscaping/decorative items that the hose may damage when pulling it to the container.
- ✓ Close all gates after driving through to prevent loss of pets or livestock. Park in a location that allows room for other vehicles to come and go freely.
- ✓ Stay alert to the activities and movement of children and pets.
- ✓ Upon job completion, conduct a vehicle walk-around to ensure your exit path is clear. Know the locations of telephone poles and utility boxes to confirm you can clear them.

Discussion Topics

1. The customer tells you other propane drivers have crossed his bridge without issue, but as you approach, you feel it might not be secure. What is your best course of action?
2. As you are exiting, you collide with an old birdhouse the customer has at her site. How do you proceed?

LEARNING ACTIVITY

Discuss a recent incident in a propane delivery or gas-related event. Discuss what was handled properly and what should have received more attention. Ask participants for input and suggestions.

Source: *Propane Delivery Operations and Cylinder Delivery* [PERC]

For more information on selecting safe delivery routes, visit propanesafety.com.



Safety Talk

Handling Vehicle Accidents and Emergencies

Accidents and emergencies that involve propane vehicles are particularly dangerous because of the chance of a hazardous material leak or fire. Hazards can also arise from fitting problems, overfilled containers, or transportation issues and may be detected en route. It is critical that propane drivers are prepared to handle these situations in an efficient and safe manner.

HANDLING ACCIDENTS OR ISSUES WITH NO PROPANE LEAK OR A CONTAINED LEAK:

- ✓ **Move the vehicle off the road and position it for safety** — Set the parking brake, shut down the engine, activate signal flashers, set the wheel stops*, check valves and containers for damage, and put out safety triangles to keep unauthorized people away from your vehicle.
- ✓ **Ensure safe conditions at the accident site** — Check for fuel spills or hazardous materials, then move and stay a safe distance away. Make sure no one is hurt and call your supervisor.

HANDLING ACCIDENTS OR ISSUES WITH A PROPANE LEAK:

- ✓ Stop, park your vehicle, and shut off your engine a safe distance from the road, other vehicles, and potential ignition sources.
- ✓ Use hazard warning signal flashers and warning triangles. However, flashers should be considered as a possible source of ignition.
- ✓ Immediately exit the vehicle, take your documents with you, and get your fire extinguisher as a preventive measure to contain non-propane fires.
- ✓ Determine if anyone is injured, and assist them if you are qualified to do so.
- ✓ Move up-wind of a leak or vapor cloud, and only activate emergency shutdown devices away from the leak if it is safe to do so. Do not pass through an area with a leak or vapor cloud.
- ✓ Call your supervisor from a safe location to report the incident. Your supervisor will make the determination whether to call 911.
- ✓ Move and direct other people away from the area.

ADDITIONAL CONSIDERATIONS SPECIFIC TO YOUR VEHICLE:

With a cylinder delivery truck:

- ✓ Check the condition of the cylinders and their valves and make sure they are all still present. Also, look for any fuel spills.

With a bobtail:

- ✓ If involved in a rollover, exit if you are able to and it is safe to do so.
- ✓ You may not know the condition of the vehicle and may need to rely on emergency response personnel to assess and handle the situation. Do not move the vehicle on your own.

ADDRESSING NON-PROPANE FIRES:

- ✓ Stop your vehicle in a location away from highly populated areas or buildings, shut off the engine, exit the cab, and call the fire department.
- ✓ Use your fire extinguisher to contain small fires if it is safe to do so.
- ✓ One of the greatest risks of fire is caused by driving on a flat or soft tire. Never leave a smoking tire unattended.

All accidents must be detailed on your company's Accident Report Form and reported to the DOT.

*The 2014 edition of NFPA 58 has replaced the term "wheel chocks" with "wheel stops."

Source: *Propane Delivery Operations and Cylinder Delivery* (PERC)

For additional information about handling accidents or emergencies, visit propanesafety.com.

Discussion Topics

1. While driving a cylinder delivery truck, you smell a faint odor of propane. How do you respond?
2. You have been in a collision, and you detect a strong propane smell but cannot detect the source. What steps should you take?

LEARNING ACTIVITY

Stage an imaginary accident involving a vehicle that has a propane leak. Discuss all potential hazards and talk participants through your company's safety actions.



Safety Talk

Entering and Exiting the Truck

As a propane delivery driver, you get in and out of your truck several times a day. While it is a routine procedure, many injuries in the propane industry occur while entering or exiting the vehicle, including twisted ankles, back strain, or even head injuries. The following rules and precautions will help you reduce your risks of injury.

WHEN GETTING INTO OR OUT OF THE CAB:

- ✓ **Keep three points of contact** — Put two hands and one foot or one hand and two feet on the vehicle at all times. This is called the “three-point rule.”
- ✓ **Face the truck** — Many injuries happen when drivers try to exit the truck without turning around. Jumping down or just stepping out without first turning toward the truck can result in significant injury.
- ✓ **Keep hands free while climbing** — If you are holding an object, put it down before entering or exiting the cab.
- ✓ **Check the ground** — Always check the ground and sides of the truck before you step down. Be careful to avoid any ice, loose debris, potholes, or other issues.
- ✓ **Caution on the last step** — Stay alert during the last move when you stop climbing down and start walking. This change in movement is a frequent cause of falls or slips.

WHEN CLIMBING ON OR OFF THE TRUCK BED:

The back of the truck does not always have the hand and foot holds to establish three good points of contact. Whenever possible, place the load back by the gate, where you can reach it without climbing in. If you must climb in the truck bed, use one of these options:

- ✓ Sit in the bed and turn.
- ✓ Use two hands and a knee.
- ✓ Climb up from the bed corner.

Make sure your grip and foot contacts are solid before making any moves. Exit the same way you entered. Never jump down from the truck bed.

QUICK TIPS ABOUT USING LIFT GATES:

Some propane trucks are equipped with service gates to move cylinders from the truck bed to the ground and back again. If you need to enter the truck bed:

- ✓ Follow your company’s policy regarding standing or riding on lift gates.
- ✓ As you maneuver around the lift gate, make sure the area where you place your feet is free from water, ice, debris, or anything that might cause a slip.
- ✓ Make sure to have an adequate grip and solid footing at all times.

Discussion Topics

1. What adjustments might you need to make when entering or exiting your vehicle in harsh weather conditions?
2. Your supervisor calls when you pull up just in time for a scheduled appointment. What procedures do you follow while taking a phone call as you exit the vehicle?

LEARNING ACTIVITY

Practice using the three-point rule when exiting a cab or climbing out of a truck bed on different types of vehicles.

Source: *Propane Personal Safety* (PERC)

For more information about entering and exiting propane vehicles safely, visit propanesafety.com.



Safety Talk

Mobile Crane Safety: Crane Transport

Before leaving the yard or job site, a crane operator must prepare the crane for proper transport. Travel only with the boom retracted and in a stowed position as specified by the manufacturer.

THE FOLLOWING STEPS SHOULD BE TAKEN BEFORE YOU ENTER THE CAB OF YOUR VEHICLE:

- Make sure the crane is stowed properly.
- Make sure the outriggers are stowed securely and are not extended vertically or horizontally.
- Hook and sheave assemblies should be fastened securely to prevent swinging. The vehicle should never be driven with a load on the hook.
- All cargo, tools, and controls should be secured and stored properly for transportation.
- If transporting a tank, make sure it is secured properly. Tanks should be placed on cradles or strapped to the side rails of the vehicle. Two tie-down straps should be used to limit movement.
- Properly placard the vehicle if required.

AFTER YOU ENTER THE CAB OF YOUR VEHICLE:

- Make sure all steps and hand rails are clean and not slippery.
- Use three points of contact when entering or exiting the vehicle, moving only one foot or hand off the vehicle at a time.
- Make sure the power take-off (PTO) is disengaged.
- Release the parking brake.
- Make sure you know the height and weight of the vehicle and load you are carrying to avoid any route restrictions you may encounter.
- Drive carefully to your destination. Remember that your vehicle has a higher center of gravity than a passenger car or pickup truck.
- Vehicles that have a high center of gravity are more prone to roll over if the driver has to make an evasive maneuver or leaves the road and goes onto a soft shoulder or ditch.

Discussion Topics

1. Is it safe to travel with your crane unstowed if you are going a short distance?
2. What can happen if you do not properly stow your crane and you get on the road?
3. What should you do if your vehicle leaves the road and goes onto a soft shoulder or ditch?

LEARNING ACTIVITY

Demonstrate how to prepare for proper transport with a mobile crane that is commonly used by your company. Have employees actively participate in each step.

Source: *Mobile Crane Safety in the Propane Industry* (PERC)

For more information regarding safe mobile crane transport, visit propanesafety.com.



Safety Talk

Mobile Crane Safety: Rigging

Proper rigging is critical to ensure a safe and efficient lift of the load. Only trained and qualified personnel should attach rigging to a crane's hook and load. Poor or improper rigging can result in personal injury, property damage, and damage to your vehicle or crane.

BASIC RIGGING HITCHES AND CONFIGURATIONS USED TO LIFT TANKS AND CYLINDERS INCLUDE:

- ✓ Lift-approved chains attached to the tank's lifting lugs are commonly used to move empty tanks.
- ✓ A double-basket hitch can be used to lift most types of above-ground tanks that have any amount of propane in them. The hitch consists of two single-basket hitches that pass under the load. When rigging a double-basket hitch, the legs of the hitches must be kept far enough apart to provide proper balance. The angle between the load and the sling should be at least 60 degrees or greater to avoid slippage. The most stable method for horizontal containers is to place the legs of the sling or strap on the outside of the tank feet.
- ✓ A double-basket hitch can be used to lift underground tanks. Since these tanks often do not have feet, they require extra caution when rigging.

BE SURE TO FOLLOW BASIC SAFETY RULES AND PROCEDURES BEFORE EVERY LIFT:

- ✓ Know the weight of the load.
- ✓ Know the center of gravity of the load. The center of gravity can easily shift when lifting containers that have liquid propane in them.
- ✓ Select a hitch that will hold and control the load.
- ✓ Ensure that the working load limit of the rigging equipment selected is sufficient for the load being lifted.
- ✓ Inspect all rigging equipment including hooks, slings, and straps being used. If slings or straps show signs of stretching, fraying, or excess wear, do not use them.
- ✓ Ensure sufficient protection of load, slings, and other rigging equipment that could be damaged during load-handling activities.
- ✓ Keep all unnecessary personnel away from the lift area.
- ✓ Lift the load a few inches off the ground, and check rigging and balance.
- ✓ If you are assisting the crane operator, you will need to know and provide correct signals to complete the lift.

Discussion Topics

1. What can happen if a load is not properly rigged?
2. Why is it important to use a double-basket hitch when lifting tanks that have propane in them?
3. What should you do if your hook has a missing hasp or your sling is frayed?

LEARNING ACTIVITY

Walk through all the steps of rigging a particular crane at your site. Ask each employee to handle a step and explain it to others.

Source: *Mobile Crane Safety in the Propane Industry* [PERC]

For more information regarding safe rigging, visit propanesafety.com.



Safety Talk

Mobile Crane Safety: Site Assessment

Proper site planning and preparation are extremely important to ensure a safe and trouble-free lift. An assessment must be conducted before you bring any vehicle or equipment on the job site.

ALTHOUGH EVERY SITE IS DIFFERENT, THERE ARE SEVERAL FACTORS AND CONDITIONS YOU ALWAYS NEED TO CONSIDER BEFORE BRINGING THE CRANE ON-SITE:

- ✓ Determine the load weight and make sure it does not overload the crane. Refer to the crane's load chart to make certain that the lift will be performed within the rated capacity of the crane.
- ✓ Check the access routes to and from the work zone to ensure the crane can safely enter and exit.
- ✓ Choose a safe route that has the least impact on the property owner's landscape. Try to avoid or limit ruts and damage to grass, plants, trees, and fences.
- ✓ Carefully examine ground conditions to verify the ground's ability to support the weight of the crane and the load. Snow, mud, sand, and soft soil conditions should be noted and accounted for.
- ✓ Locate all underground utilities and structures. The weight of the vehicle and its outriggers can puncture or collapse underground pipes, utility lines and outlets, septic tanks and septic drain fields, cisterns and water wells, and underground electric dog fences. Always ask the property owner to identify the location of all underground utilities and structures.
- ✓ The area should be fairly level. Consult your owner's manual to determine the amount of slope that your crane can tolerate. As a general rule, side slopes, shoring locations, excavations, and trenches should be avoided.
- ✓ Check for power lines and other overhead objects. Remember, tree branches and other obstructions can hide power lines.
- ✓ Determine the radius requirements of the lift. Be sure that these requirements will not cause you to enter an electrical danger zone.

Discussion Topics

1. Even if you have been to the job site in the past, do you still need to conduct a thorough site assessment before conducting a new lift? Why or why not?
2. What can happen to your crane if you set up on soft or unstable ground?
3. Why is it important to know the location of every underground utility and structure at the job site?

LEARNING ACTIVITY

Act out a site assessment on your facility premises or a nearby location. Have all participants take part, and discuss special issues that might arise during different seasons.

Source: *Mobile Crane Safety in the Propane Industry* [PERC]

For more information regarding mobile crane site assessment, visit propanesafety.com.



Safety Talk

Mobile Crane Safety: Crane Operator Requirements

Qualifications for personnel to operate a crane include proper training, good physical condition, and knowledge of your responsibilities at all times.

PERSONNEL PERMITTED TO OPERATE A CRANE MUST MEET THE FOLLOWING GENERAL REQUIREMENTS:

- ✓ Be "designated" by his/her company in the inspection and safe operation of a crane.
- ✓ Be trained by an experienced and qualified crane operator. In addition, the person must demonstrate a proficiency in performing all equipment operations.
- ✓ Understand load rating charts, and know all crane components and control functions.
- ✓ Understand the manufacturer's specifications for the maintenance and safe operation of the specific crane he/she is operating.
- ✓ Have a thorough knowledge of the requirements, regulations, and safety codes pertaining to the operation of the crane. All safety decals and emergency procedures must be understood.
- ✓ Be in good physical condition. Good vision, hearing, and depth perception, and the ability to recognize colors are required. Must demonstrate sufficient strength, endurance, agility, and coordination to meet equipment operation demands.

CRANE OPERATOR RESPONSIBILITIES INCLUDE:

- ✓ Exercising care and common sense when operating a crane or driving to a work site.
- ✓ Ensuring your safety and the safety of others.
- ✓ Paying full attention and concentrating when operating a crane. Never engage in any activity that will divert or distract your attention while operating the crane controls.
- ✓ Ensuring that the equipment is operating properly. The crane should be inspected by the operator prior to each use. Promptly report the need for any adjustments or repairs, and do not operate the crane until such repairs have been made
- ✓ Never operating a crane if you are physically or mentally unfit or under the influence of alcohol, drugs, medications, or any chemicals that may impair your abilities.

Discussion Topics

1. Why is it important to be properly trained in the operation of a crane?
2. What are some of the safety implications of not operating your crane correctly?
3. If you get a call on your cell phone from your supervisor while operating a crane, what should you do?

LEARNING ACTIVITY

Ask employees to share safety-related experiences they have encountered in their jobs. What techniques do they use to avoid distraction? What suggestions do they have for others about managing their cell phones while operating a crane?

Source: *Mobile Crane Safety in the Propane Industry* [PERC]

For more information regarding mobile crane operator requirements, visit propanesafety.com.



Safety Talk

Mobile Crane Safety: Overhead Power Line Safety

Overhead power lines are among the biggest dangers that you will encounter as a crane operator or rigger. To protect yourself, your co-workers, and bystanders from electrocution while operating your truck or crane near overhead power lines, several safe operating guidelines should be followed.

PROPER PLANNING AND RECOGNITION ARE IMPORTANT:

- ✓ Conduct a visual site assessment before moving equipment onto a job site. Identify any above- or below-ground hazards. Walk the lift route.
- ✓ Always assume that an overhead line is energized unless an electric utility authority verifies that the lines are de-energized.
- ✓ Determine the voltage of each line. If the power line has a normal voltage of 350,000 volts or less, a 20-foot minimum clearance is required from the line's danger zone. If the voltage is unknown or above 350,000 volts, a 50-foot clearance must be maintained.
- ✓ When an energized power line is near the work area, create a barrier to identify the zone that the boom, hoisting line, hook, load, or crane components should not enter.
- ✓ If the lift cannot be performed outside the minimum clearance requirement, notify your supervisor or the electric utility and have the power lines de-energized before the lift is attempted.

SAFETY PRACTICES WHEN OPERATING YOUR CRANE NEAR POWER LINES INCLUDE:

- ✓ Carefully plan all work and crane movements that may be required to eliminate any chance of contact with a power line.
- ✓ Make sure to maintain proper clearance away from power lines at all times. No portion of the crane, its load, and attachments should enter the line's danger zone. If it is windy and there is potential for the line to sway, take this into account when you determine the minimum clearance.
- ✓ Always operate in conditions where the vehicle and equipment can be stabilized. Make sure to use your outriggers. Do not set up on soft soil, mud, snow, or other unstable ground conditions that could allow equipment to shift and move within the danger zone of the power line, without taking the necessary steps to ensure the stability of the crane.
- ✓ Reduce the crane's operating speed to allow more reaction time if needed.
- ✓ If the crane operator cannot maintain a safe clearance by visual means, designate a person to observe the clearance and to give immediate warning if the crane approaches the danger zone.
- ✓ Make sure all personnel are at a safe distance away from the crane and the power line at all times.

Discussion Topics

1. If a crane operator or rigger fails to observe proper power line safety requirements, what can happen?
2. What should you do if you are unsure that all work can be performed outside of the minimum distance requirement between the power line and the crane?
3. Why is it important to know the voltage of each power line at the job site?

Source: *Mobile Crane Safety in the Propane Industry* [PERC]

For more information on safe crane operation near power lines, visit propanesafety.com.



Safety Talk

Mobile Crane Safety: Daily Inspections

Cranes and rigging equipment must be inspected regularly to identify potentially unsafe conditions. A thorough inspection program can help to reduce equipment failures and malfunctions. Every type of crane should be inspected by the operator prior to each use. Make sure you check the manufacturer's operating manual for inspection routines and items to check for on your specific crane.

PROPER INSPECTION OF YOUR CRANE AT START-UP GENERALLY INCLUDES:

- ✓ **Vehicle and Chassis** — Check oil level, battery, lights, and brakes. Check tires for proper pressure, cuts, and loose or missing wheel lugs.
- ✓ **Operation and Safety Decals** — Make sure all load charts, safety decals, and control decals are present and legible.
- ✓ **Anti-Two-Block System (telescopic cranes)** — Check for proper operation. Inspect for cracks, grooves, or damage.
- ✓ **Hydraulic System** — Check for proper oil level. Check hoses and fittings for leaks. Use caution as hydraulic systems can contain very hot oil and can be under extreme pressure.
- ✓ **Controls** — Check all control mechanisms for proper operation of all functions. Look for leaks, cracks, and excess wear.
- ✓ **Remote Control (if applicable)** — Check all remote functions for proper operation and damage.
- ✓ **Electrical Systems** — Check all lights and alarms for proper operation.
- ✓ **Hardware** — Check pins, sheaves, nuts, and bolts for breakage, excess wear, and tightness.
- ✓ **Covers and Guards** — Check for missing or improperly maintained covers and guards.
- ✓ **Hooks** — Check for the presence and proper operation of a safety catch or hasp. Check hooks for cracks or damage.
- ✓ **Slings and Wire Ropes or Cables** — Check for frayed edges, broken strands, kinks, flat spots, and end attachments. Check wire rope traveling around drums and sheaves for damage.
- ✓ **Overall** — Check crane for damage or missing parts, leaking cylinders, and cracked welds.
- ✓ **Fire Extinguisher** — Make sure a properly sized and rated fire extinguisher that is fully charged is on the vehicle.

If any problems or deficiencies are observed during the inspection, do not operate the crane until they have been repaired or it has been determined by a qualified person that the problems do not constitute a safety hazard.

Discussion Topics

1. Why is it important to inspect your crane prior to each use?
2. How can your safety and the safety of others be at risk if a crane defect or problem is not identified and repaired in a timely manner?
3. Whose responsibility is it to keep the crane in good working order?

LEARNING ACTIVITY

Have a crane available on site and adjust it to have deficiencies (missing equipment, burnt-out light bulbs, uncharged extinguisher, etc.). Have participants inspect the crane and note problems they find. Discuss how to remedy each issue.

Source: *Mobile Crane Safety in the Propane Industry* [PERC]

For more information regarding mobile crane inspection, visit propanesafety.com.