



RISK BULLETIN

Mobile Cranes: The Importance Of Lift Assessments

Mobile crane work involves lifting and placing many types of materials in both “safe” and hazardous locations. Although large or complicated lifts are easily recognized as being of a critical nature requiring additional

planning, the hazards associated with smaller lifts may be less obvious. Therefore, it is important to conduct a lift assessment regardless of the specifics of the lift. Equally as important is a firm understanding of the operator’s and supervisor’s responsibilities during any type of lift.



LIFT ASSESSMENT PROCESS

Currently, there is no consensus standard regarding when formal lift plans are required. One widely recognized standard, from the Construction Safety Association of Ontario, defines a critical lift as those where the gross load is within 75 percent of the rated capacity of the crane. Another standard is the Exxon Crane guide, which defines a critical lift as greater than 90 percent of the rated capacity. The bottom line is that each company should establish its own

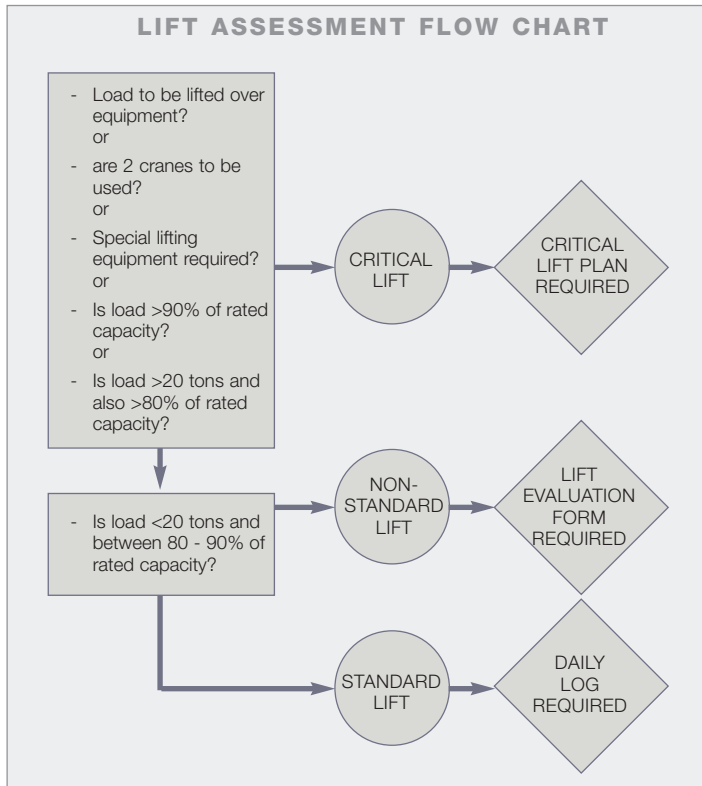
critical lift guidelines. The degree to which the guidelines are applied depends on the results of the Lift Assessment Process. Lifts can be classified by the degree of difficulty. An example of a Lift Assessment Process, as developed and recommended by Exxon, is discussed below. A Lift Classification Flow Chart describes the process.

- A lift planner should use the Lift Classification Flow Chart in determining the classification of the lift and the planning required.
- All critical lifts should have a formal Critical Lift Plan. Outside engineering help may be required to fully assess and resolve all important load and site factors.
- More routine lifts are classified as Non-Standard. The Lift Planning Process is less involved than for a Critical Lift and is documented on a Lift Evaluation Form.

DAILY CRANE OPERATION LOG

Most lifts will be classified as Standard and require less planning and documentation. This type of planning can be documented in a Daily Crane Operation Log. A Daily Crane Operation Log is designed to record basic lift information and confirms the load is within the rated capacity of the crane. One of the main reasons for completing a log is that it requires the crane operator to document even the most fundamental aspects of a lift, thereby decreasing the chances of lifts being made in an unsafe manner.

2 | MOBILE CRANES: THE IMPORTANCE OF LIFT ASSESSMENTS



LIFT EVALUATION FORM

A Lift Evaluation Form (LEF) should be used when a lift is determined to be Non-Standard. The LEF is a one-page document. To complete the LEF, the supervisor must evaluate the basic questions noted in the flow chart on page 2, and with the aid of the operator, determine if the gross load is (1) less than 20 tons, and (2) between 80 percent and 90 percent of the manufacturer's load chart during all parts of the lift. This information, in addition to some basic site evaluation remarks, is recorded on the LEF. Sign-offs should include the operator, lift supervisor, area supervisor and engineer.

CRITICAL LIFT PLAN

A Critical Lift Plan (CLP) consists of drawings, specifications and procedures necessary to accurately assess all important load and site factors relating to a critical lift. However, most lifts do not involve all of the factors listed in the flow chart above, in which case a minimum level of

information is required to comprise an adequate lift plan. Main components of the CLP include:

- Elevation View Drawing
- Plan View Drawing
- Lift Analysis

All potential complicating issues for any lift should be addressed in the lift plan. Some of the precautions that should be addressed by the CLP are:

- **Supporting Surface** – Ground compact and stable?
- **Blocking** – Outrigger blocking used and crawlers on pads or cribbing (unless the crane sits on a concrete pad)?
- **Level** – Machinery deck or boom foot pins absolutely level?
- **Load** – Load weight determined exactly?
- **Center of Gravity** – Location of the load's center of gravity determined and the crane hook positioned above it?
- **Load Radius** – Measured exactly?
- **Boom Length** – Determined exactly?
- **Boom Angle** – Boom angle, if necessary for determining the crane's capacity, determined exactly? (Do not rely on the crane's boom angle indicator.)
- **Wind** – Wind effects considered? (If wind speeds are greater 30 mph, do not make the lift. If greater than 20 mph, consider postponing.)
- **Overhead Exposures** – measure clearance exactly
- **Reeving** – Balanced?
- **Load Rigging** – Checked for adequacy and security? Exact weight of rigging known?
- **Operation** – Reinforced the need to make all controls, machine and load movements as slowly and smoothly as possible?
- **Unstable Load** – Large, thin or potentially

unstable pieces to be lifted?

- **Multi-crane Lifts** – Will the load require more than one crane to perform the lift?
- **Congested Areas** – Will the lift be performed in areas where structures, pipe racks, power lines or other obstacles are present?
- **Turning** – Will the lift involve turning or flipping a piece from one side to the other?
- **Power Line Exposure** – Lines de-energized - mandatory distance from arching?

The site supervisor is responsible for ensuring the CLP is developed and reviewed before the lift is made. The Plan should be presented to the facility owner as appropriate. Responsibilities for the lift are divided among several individuals including the operator and the site supervisor.

Note: In the event that it becomes necessary to deviate from the CLP, the lift should be re-evaluated and the CLP should be revised.

CONCLUSION

The lift plan process should be followed regardless of the specifics of the lift. The general guidelines outlined above are important factors for any company to consider when developing and implementing a Lift Assessment Process.

The information contained herein is intended for informational purposes only and does not constitute legal advice. For legal advice, seek the services of a competent attorney. Any descriptions of insurance provisions are general overviews only.

"XL Insurance" is the global brand used by XL Group plc's (NYSE: XL) insurance companies. Coverages underwritten by Greenwich Insurance Company, Indian Harbor Insurance Company, XL Insurance America, Inc., XL Specialty Insurance Company and XL Insurance Company Limited—Canadian Branch. Coverages not available in all jurisdictions.



XL Environmental
Risk Control Division
505 Eagleview Boulevard
Suite 100
PO Box 636
Exton, PA 19341-0636
Phone: 800-327-1414
Fax: 610-458-7285
www.xlenvironmental.com

XL Environmental is a Division of XL Specialty Insurance Company.