



Chubb Construction
CSI Country Wide Case Study Safety Strategy Discussion
Construction
Safety
Investigator

Instructions: The objective of this tool is to provide field supervisors with information to proactively engage workers and discuss safety related concerns that they may encounter. Safety discussions should not be limited to the subject above and should pertain to the activities that workers will be involved in that may have the potential for safety related exposures.

Case Day:	Unknown	Accident Type:	Mobile Crane Accident Overturned
Relevant laws, rules and codes may include:	1926.550; 1926.550 (a)(1), 1926.550 (a)(2), 1926.550(a)(5), 1926.251		

Case:	A 10.5 ton carrier deck mobile crane in the process of hoisting a load or piping at a, industrial construction project had a stability failure that resulted in the crane overturning and landing on its side.
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**Accident
Detail:**

A certified crane operator running a 10.5 ton mobile crane was in the process of lifting a load of piping which had a weight of 7371 lbs. The crane was equipped with an on board computer with a load cell.

At the time of the lift, the crane was set up within an enclosed building structure supported by a solid concrete floor slab. The cranes outriggers were retracted, the boom was fully extended and the operating radius was 12 ft. The ancillary weight including main block, hook & ball and rigging 1 was an additional 400 lbs

Late in the afternoon the operator began to lift the load of pipe to set it at its designated location. In the process of swinging the load into position the crane overturned.

**Reconstructive
Safety
Evaluation:**

- What are some of the possible causes of the accident being discussed?
- What actions could have been taken that might have prevented this accident from occurring?

**Accident
Scene
Conclusion:**

- As indicated, the weight of the load being hoisted at the time of the incident was 7371 lb plus the ancillary weight of 400 lbs made this a 7771 lb lift.
- According to the crane's load chart, it's lifting capacity in the configuration at the time of the incident indicated 2875 lbs for "on rubber", 4550 lbs for "on outriggers retracted" and 8400 lbs for "on outriggers extended"
- Since the cranes set up clearly indicated that the out riggers were retracted and in contact with the ground, the crane's lifting capacity in this configuration was 4550 lbs. The 8400 lbs being lifted clearly exceed the crane's capacity causing a stability failure that resulted in overturning the crane.
- During the investigation the crane operator indicated the on board computer did not show he had a problem with the lift. Further investigation indicated that the operator did not read the crane load chart correctly.

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**Preventive
Safety
Measures
Include:**

- Determine the weight of every load to be lifted and determine the ancillary weight in order to obtain the total weight that the crane will, be lifting.
- Determine the crane set up and configuration for each lift including but not limited to boom length, operating radius, outrigger configuration, crane levelness, ground conditions, wind and overhead interference including electrical.
- Once you have ascertained the information noted above, determine if the load to be lifted is within the safe working capacity of the crane load chart.
- Make sure the computer is properly programmed and functioning for the cranes set up and configuration when being utilized but do not rely solely on the crane's onboard computer to determine if the crane can safely lift the desired load.
- Conduct daily and periodic inspections of the crane to ensure its components are functioning properly.
- Ensure the rigged load's center of gravity has been properly determined and verify that the appropriate rigging equipment and techniques are being utilized.
- Conduct pre-lift meetings with the crew to review procedures and protocols.

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