

FATAL ALERT

On July 20, 2010, an employee working for a roustabout service was struck by production casing or the production casing rack as it collapsed. At the time of the accident, three employees of a roustabout company were loading production casing onto the production casing rack of an oilfield drilling rig. 141 joints of 5 ½ inch casing, with a total weight of over 93,000 pounds, were loaded onto the production casing rack assembly in three layers. Once the roustabout crew completed the loading of the production casing they began removing and disposing of the production casing's threads protectors. As one of the employees of the roustabout crew reached under the production casing rack to retrieve a threads protector, the production casing rack assembly collapsed striking him in the back of the head. Post-accident analysis of the procedures used to load the production casing rack indicates that the production casing rack was grossly overloaded.

The physical separation of the two production casing rack supports/assemblies for the production casing rack are permanently attached to the drilling rigs substructure and are set at 23 feet apart. The 141 joints of production casing, averaging 42.5 feet in length were loaded upon the production casing rack supports/assemblies, under the direction of the drilling company. The production casing was not balanced between the two sections of the production casing rack. Instead they were loaded so that 3 feet of the production casing overhung on one side/end and approximately 16.5 feet overhung the opposite side/end. The cantilevered load condition caused the center vertical support leg to roll sideways due to its lateral/horizontal instability. This horizontal movement of the production casing rack assembly generated eccentric loading on the center support leg of production casing rack, causing the leg to fail and the entire production casing rack system to collapse striking the employee of the roustabout company and causing his death.

Significant Factors:

- The trailer mounted drilling rig was manufactured in the early 1980's
- The drilling rig manufacturer is no longer in business and the current owner of the rig has no information pertaining to safe load capacities or procedures for the casing rack assemblies
- Due to physical limitation of the drilling location, only two of three sections of the production casing rack system were extended.
- The decision was made by the drilling company to load all 141 joints of production casing onto the production casing rack assembly in three layers which was not in the realm of normal operations.
- If the load had been placed on all three sections of the production casing rack assembly the load would have been dispersed over a larger rack assembly area.
- No one on the rig site identified the manner in which the production casing was being loaded onto the production casing rack as possible overload configuration.
- No one on site had the load capacity information for the production casing rack assembly.

Recommendations:

- Brief all employees on the facts and circumstances of this fatal mishap.
- In accordance with American Petroleum Institute Specification 4F, determine and mark the derrick, substructure, and crown block assembly with nameplate and data as required by reference.
- Determine, understand, and work within the safe load capacities of pipe rack systems.
- Ensure that pre-tour safety meetings are being conducted to discussing the work to be performed, identifying the potential safety hazards and implementing safe work procedures to control hazards.
- Ensure maintenance and repairs, in the absence of the manufacturer, are being completed by a qualified person utilizing acceptable engineering practices utilizing replacement materials meeting Original Equipment Manufacturer (OEM) specifications or equivalent.