



# Safety Alert

From the International Association of Drilling Contractors

## ALERT 07 – 03

### MAST RAISING LINE FAILURE

#### WHAT HAPPENED:

During the rig move, the drilling rig mast was to be raised. It was initially lifted 30 cm (12 inches) from its horizontal position on the high derrick stand and operations stopped for 15 minutes with the mast hoisting system under tension. This was done to allow the crew to fit Blowout Preventer (BOP) lifting beams below the sub-structure. Lifting operations then re-commenced pulling 220 tons, lifting a further 60 cm (2 feet). A bang was heard and the mast fell back 90 cm (3 feet) uncontrolled, landing on and damaging the high derrick stand. The monkey board and mast were also damaged. . No personnel injury but there was major asset damage.



Picture 1



Picture 2



Picture 3

#### WHAT CAUSED IT:

It was found that the short leg of the 2 1/4" diameter mast raising line had failed at the first sheave. The mast had been raised 30 cm (12 inches) and left static with the failure weight 220 ton held on the brake. No clear cause of the raising line failure could be established at the initial site visit. Further metallurgical and dimensional checks need to be carried out by independent cable examination laboratories. The line had exceeded its life span as set by the contractor, but not its number of cycles. A step-out was generated for this, but not on sound engineering principles.

#### Potential Severity:

A Level 4 (fatality) potential was assigned to this incident from the fact that men were then walking in the area where the raising line whipped during failure. Given a different time of failure one or two men could have been seriously injured or killed.

#### CORRECTIVE ACTIONS: To address this incident, this company issued the following instructions:

- Change out your raising line on time. Do not exceed the working life or cycles set by the company. Question the assumptions on which the change out is based.
- Ensure that all step-outs are based on sound engineering principles, not just to keep a unit in action. Do a reality check on the risk assessment in the step-out, what if this piece of equipment failed, what would the end result be, do not understate the results
- Understand the loads applied in the system and the safety factors applied.
- Under no circumstances allow anyone to walk or work under the mast or in the sub-structure area when the lifting of the mast is taking place. If work needs to be done, find another way to do it.
- Refer to raising-line procedures in pre-job discussions, recognize loads quoted and question when these figures don't match reality.

IADC Note: Refer to the IADC HSE Committee's Safety Topic Book "Raising and Lowering the Mast"

**The Corrective Actions stated in this alert are one company's attempts to address the incident, and do not necessarily reflect the position of IADC or the IADC HSE Committee.**

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