



Drillsafe – Perth – 7th March 2007

Dropped Blocks – Rig #3 – 04/04/2006



Presented by:

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Photographs depicting resting position of blocks following incident.





Incident Details

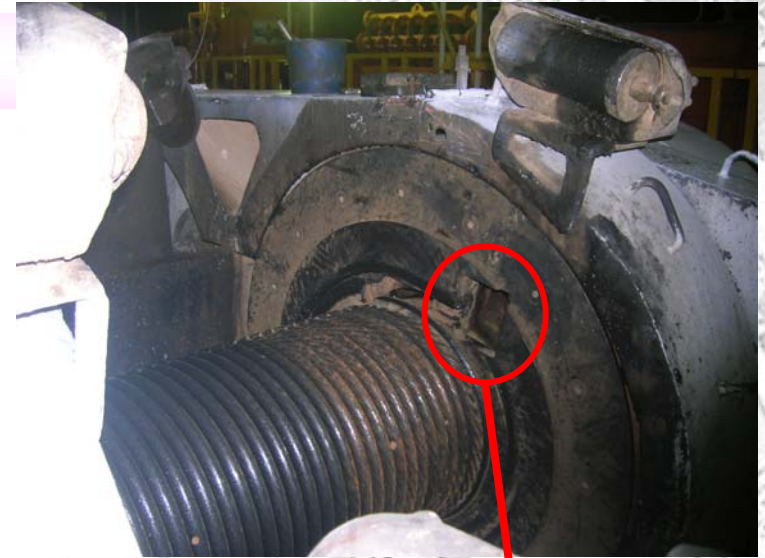
- High Potential Near Miss and Equipment Damage
- Date: Tuesday 4th April 2006
- Time: 7:15pm
- Location: Christies #5 – Cooper Basin SA
- Rig: Century Rig #3
- Client: Beach Petroleum Ltd.





Background

- 7.15pm - 02/04/06: Slip & cut procedure was undertaken and completed by 3 rig personnel – a floorman, driller and night rig supervisor.
- 7.15pm – 04/04/06 (48 hours later): A subsequent event occurred whereby the drill-line cable slipped and pulled out of the drill-line knuckle and retaining slot in the draw works.

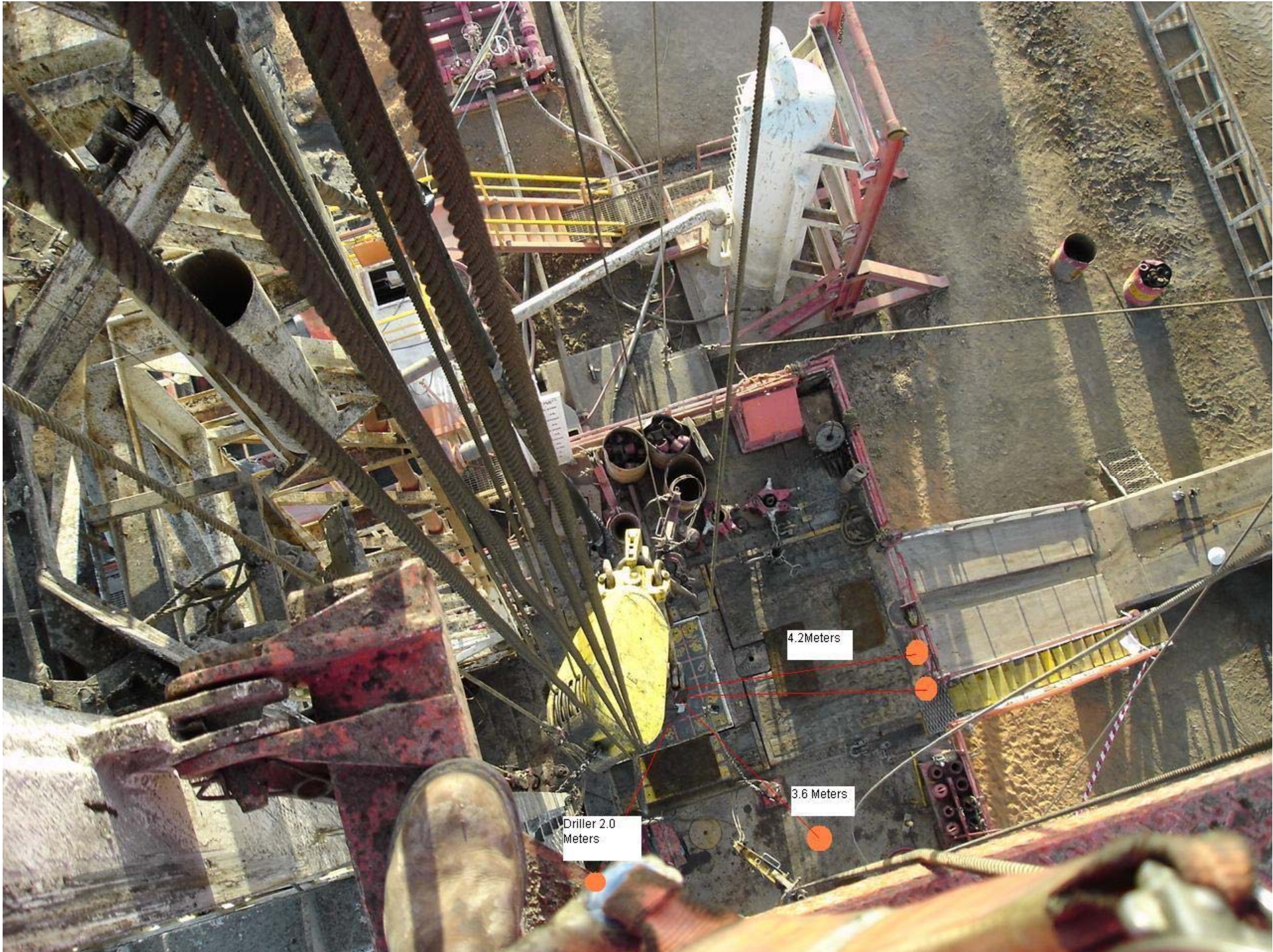




Background Cont.

- This resulted in allowing the tension to slacken on the drill-line cable against the draw works drum allowing the travelling blocks to gain additional momentum whilst travel towards the rig floor with no control by the driller or rig braking system.
- This uncontrolled momentum finally resulted in the travelling blocks and swivel impacting the derrick and rotary bushings.
- 4 crew members were on the rig floor when the incident occurred:
 - 2 x Floorman cleared the floor toward the V-door stairs,
 - 1 x Floorman cleared the floor toward the Doghouse,
 - 1 x Driller remained at the brake trying to regain control of the descending blocks.





Driller 2.0
Meters

3.6 Meters

4.2 Meters



Taproot - Sequence of Events

- A Taproot investigation was conducted with all stakeholders and statements/interviews were taken/conducted with all crew members involved in both the slip and cut operation and the incident.
- The investigation identified the following:
 - 45 Events,
 - 54 Contributing Factors, and
 - 6 Causal Factors.
- From the identified contributing and causal factors, 7 corrective actions were identified and implemented.
- The causal factors and corrective actions are summarised in the following slides.

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Photographs of failed knuckle condition and wear of u-bolts, threads, washers and nuts



Photographs of knuckle types and comparison of failed vs. new knuckle.





Causal Factors

1. Standard Operating Procedure (SOP) for the slip and cut operation (conducted on 02/04/06) was available, but written with assumed knowledge and not enough detail.
2. Oxy cutting the drilling line affected the integrity of the wire line (The correct cold cutting process as outlined in the SOP should have been used).
3. No specific person held accountable for checking knuckle condition and serviceability during slip and cut.
4. No action taken when knuckle showed signs of wear – “ it had always looked like that!!”
5. No preventative maintenance documentation available for the use and servicing of the knuckle.
6. No SOP to specific correct use and torque of knuckle nuts.





Corrective Actions

- **Immediate:**
 1. Work stopped and incident discussed with crew involved and at Pre-Tour Safety Meetings for other crews.
 2. Safety alert sent across the Century fleet and to industry outlining the incident and immediate corrective actions to be taken.
 3. SOP revised to outline specific technical requirements and supervision expectations.
 4. Knuckle replaced and torque wrenches provided to ensure appropriate tensioning.



Corrective Actions (Cont)

- **Short Term:**

1. [Plant Technical Bulletin](#) created regarding the 2 knuckle types used in the fleet and the required torque setting from the manufacturers. This was sent across the fleet using safety alert network.
2. Additional knuckle held on all rigs as part of critical spares and replaced every 12 months no matter what the condition is.

NB. This is a \$600 component.

- **Long Term:**

1. Improved audit and inspection protocol established to ensure regular checking of wire line anchors in both HS&E and Plant checks.
2. Review of maintenance system to ensure safety critical components are covered by a scheduled work order in the system.





Learning for Industry

1. Maintenance regimes must be adhered too and unseen components need to be considered by rig managers and tradesmen.
2. Adequate and knowledgeable supervision is required for tasks with safety and mechanically critical components.
3. SOPs are only as good as the crew members applying them and levels of complacency must always be considered when conducting “routine” tasks.
4. Very simple components (Knuckle = \$600) need to be considered as critical and respected as such.
5. All wire line anchors on rigs have varying tension and maintenance requirements and all companies should be reviewing their own systems.





Please direct any questions to:

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