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A unique combination of people and technology



Brent Bravo Dropped Barrel



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**Incident:** Oil drum dropped during lifting operation.

**Location:** Brent Bravo

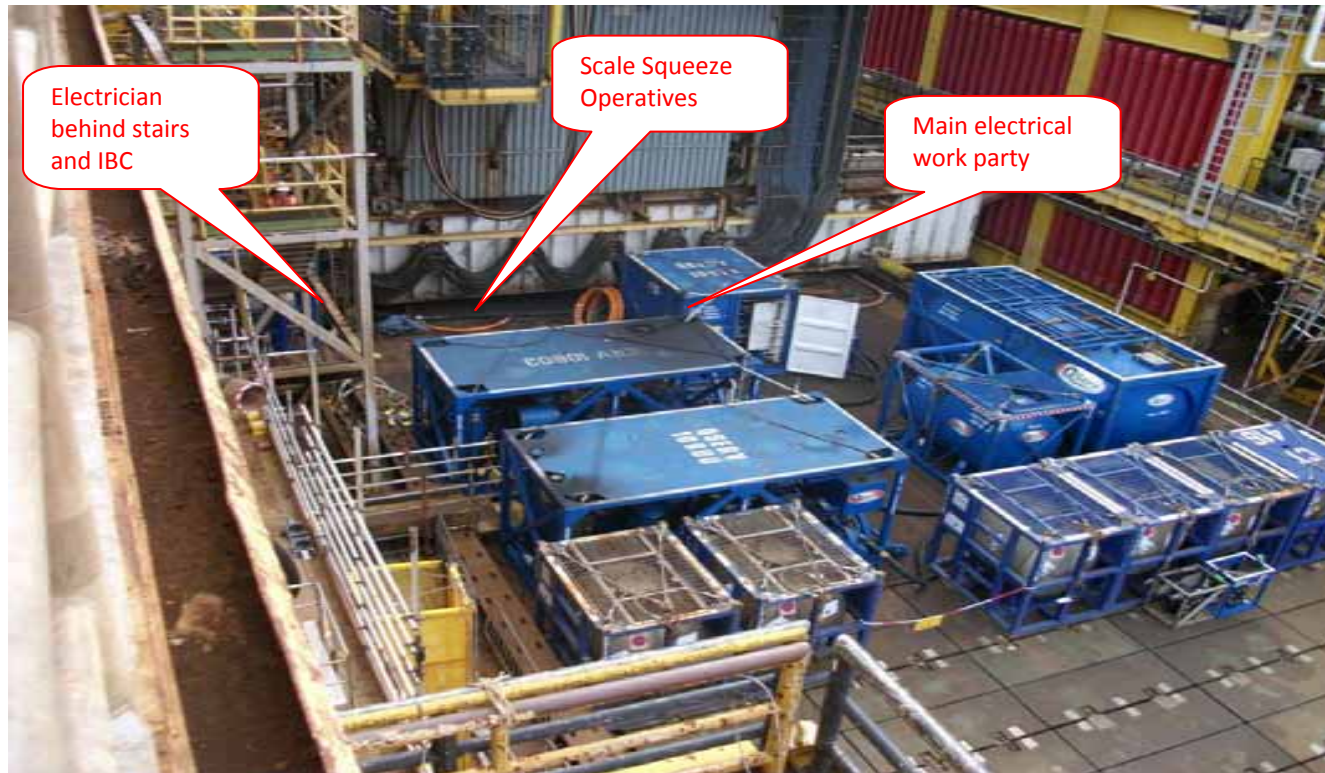
**Date:** 17/05/2010

**Outcome:** The oil drum fell approx. 15 m to deck disgorging it's contents. There were no injuries to personnel or any environmental consequence.

**Potential Outcome:** The oil drum had the potential to strike an electrician who was working in the area causing a single fatality

## What Happened?

- On the day of the incident the drilling crew were reinstating the combined top drive unit and there was a scale squeeze crew on board (under operations control)
- There were three Electricians working on connecting the scale squeeze skid to the rig electrical mains circuits.



# What Happened?

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A break in to the days crane operations plan was required by the Wells crew to lift a 208ltr drum of oil to the drill floor

To do this they used the Vertical Barrel Clamp (VBC) owned by Sigma3  
The Drilling Deck Foreman (DDF) and Derrickman (DD) collected the key to the deck store on the pipe deck from the Platform Deck Foreman (PDF). He then collected the VBC and attached it to the crane



# What Happened?

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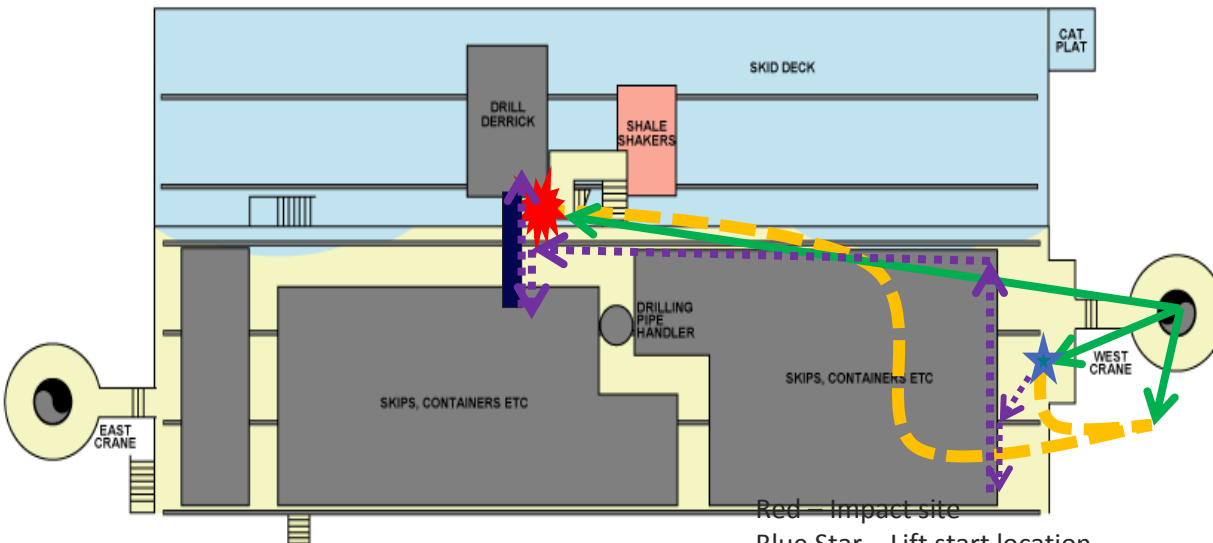
- The drum was attached to the VBC by the DD and checked by the DDF
- The DDF instructed the Crane Operator (CO) to take the load to the V-door
- The DDF and DD made their way to the drill floor to open the V-door
- The CO took control of the lift to get the drum to the V-door as instructed

# What Happened?

## BRENT BRAVO Skid Deck/Cranes

The DDF and DD did see members of the scale squeeze crew on the skid deck but took no action as they believed they would not be affected by lift

The drum was lifted on the route as shown so as the load would not pass behind the pipe handler creating a blind lift.



Red – Impact site  
Blue Star – Lift start location  
Green Line – Crane Positions  
Purple Dotted line – Route  
Personnel walked  
Orange dotted line – Projected  
crane movement path

# What Happened?

The DDF and DD entered the drill rig to open the V-Door loosing sight of the load

The drum fell out of the VBC as it was being boomed down to the Drill Derrick catwalk

The CO informed the DDF that the load had fallen

The drum impacted on the west side skid beam of the drill rig sub-structure



# Independent Onshore Clamp Inspection Findings:

There was no mechanical failure of the VBC

The VBC was incorrectly fitted to the drum. The VBC was fitted over the top of the filler caps on the lid of the drum. This meant that both clamps could not be installed under the rims of the drum as required by the operating instructions





# Independent Onshore Clamp Inspection Findings:

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- The VBC was also found to be in the fully closed position after the VBC was removed from the crane. This showed the VBC had been over tightened.



When the fully closed position was re-created with the VBC orientated over the filler cap at the onshore test facility the drum was deformed. With the distortion of the drum, the clamps not being under the rim, the weight of the drum and the motion of the lift meant the drum worked its way free of the clamp.

## Investigation Findings:

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Manufacturers safe use instruction did not adequately identify precautions with installing the device over a filler cap and how the device can be over-tightened

Various methods are used in CNNS to move drums around the platforms. No comparative risk assessment has been completed to determine the best practice methods for completing this activity.

The investigation team believe that this device is a suitable device for lifting oil drums when the above findings are addressed.

The responsibility for the crane lift was handed over to the crane operator once the load was clear of the deck contrary to procedure and industry training. Banksman duties were not carried out adequately.

## Other Investigation Findings:

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There were inadequate checks made to ensure that the lift route was clear of personnel

The Seawell “Lifting Operations Flowchart” requires a risk assessment and lift plan for this type of lift. This was mis-interpreted and not followed.

Poor custom and practice has developed around adherence to procedures, risk assessment and industry training for crane/lifting operations amongst the platform and drilling deck crews involved in this incident on Brent Bravo.