

Safe Rig project in StatoilHydro

Presentation by Vetli Tveiten

Safe Rig

- 2008 was a year of integration activities in the two merged companies, Hydro and Statoil.
- Low activity in the Safe Rig project, we had some FO inspections and verifications (check of the management system of our drilling contractors regarding FO prevention)
- In 2009 the project is strengthened with designated personnel, instead of part time
- We have established two frame agreements with companies that provide Falling Object inspections, training in observation techniques and FO surveys (How our Drilling entrepreneurs include FO prevention in their management system and working procedures)
 - CAN AS and DOM Group AS
 - Mainly on the Norwegian sector, but also some tasks in the international business area
- We also continue the work with establishment of common Best practises, to create a safer workplace for everyone
 - This is a Norwegian sector initiative
 - All our drilling contractors and service companies are included in this work

Falling object during maintenance of DDM

Event description

During annual maintenance of main shaft on DDM (derrick drilling machine), a "filler bushing" (5 kg) fell 12.49 meters down on the drill floor.

The filler bushing assembly is installed in the "box end" of the main shaft and a part of it was ignored in connection with preparation for maintenance.

Incidentally, there were no persons harmed but the object hit Drill floor about 2 meters from a crew member.

Energy 613 joule.

Cause

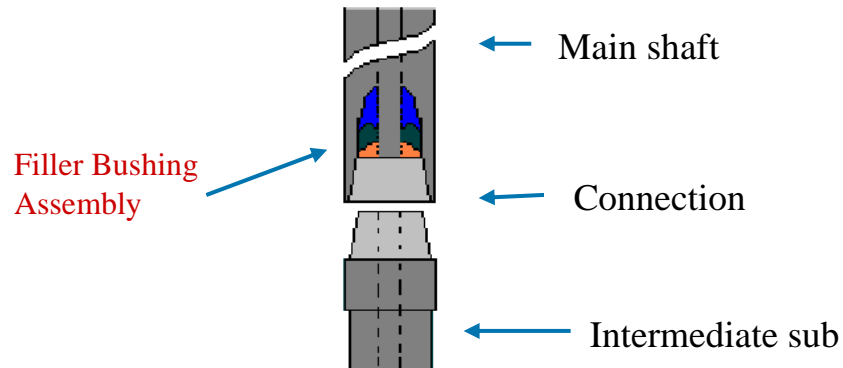
- The filler bushing consists of 3 pieces, but only 2 of them were removed during disassembly.
- It was discovered that there were 2 different procedures which described the maintenance activities
- The direct cause of the incident, was the lack of details in the procedure that was used.

Recommended actions / Lessons learned

- Make sure that procedures includes all necessary details.
- Make sure that correct procedures are available and are used!

Falling object during maintenance of DDM

- Part of filler bushing, that fell down



Flood light fell from crane boom

Event description

During work with the bunkering hose, the deck crane was used. The crane boom was swung out, and the flood light at the end of the boom fell down onto the deck of the supply vessel. There were two sailors on deck when the incident occurred. One of the sailors were only two meters away when the flood light hit the deck, but no personnel injuries. The weight of the flood light was approx 30 kg, height approx. 30 - 40 m. Energy 10290 joule.

Cause

- Fatigue fracture in the pivot/attachment bolt. Size M20 Stainless (Bolt was tested in a laboratory)
- Missing or incorrect installation of secondary retention
- No fatigue limit / life calculation during design
- Insufficient maintenance requirements from the manufacturer

NOTE! Crane boom camera pivot bolts found worn down to approx 30-40%

Recommended actions / Lessons learned

- Maintenance procedure to include change of bolt, at an interval
- New cranes to have a larger bolt
- Install the secondary retention according to Reliable Securing

Flood light fell from crane boom



Flood light fell from crane boom



Flood light fell from crane boom



Flood light fell from crane boom



Falling lighting fixture

Event description

Around 0130 AM a loud bang was heard by a person in his cabin. Wind 60-75 knots. Inspection revealed that a 13 kg lighting fixture had fallen down from the gang-way below the heli-deck, down along the living quarters hit a stairway railing and a HVAC duct, where it was found.

Fall height approx 50 meters; energy 6370 joule.

Cause

- Strong winds, causing vibrations
- Fatigue in corroded welds on the supporting brackets (stainless steel)
- No secondary retention

Recommended actions / Lessons learned

- Welding procedure used, or lack of knowledge
- Missing secondary retention
- All equipment in weather exposed areas were inspected, repaired and fitted with secondary retention
- Maintenance procedures were updated

Falling lighting fixture



Loose Heat Shielding in Derrick

Event description

Heat shield elements in derrick consist of a frame with outer and inner steel mesh welded on to it.

Outer mesh had become loose on 4 elements – potential dropped object

Previous derrick inspections had not revealed weaknesses in heat shielding

Same design used on several installations offshore for many years.

(55 m, 16 kg, 8633 Joule)

Cause

Not concluded - vibrations in derrick combined with insufficient welding possible cause

Recommended actions / Lessons learned

Inspections of heat shields with welded mesh. Secure loose meshes temporary until permanent solution is identified.

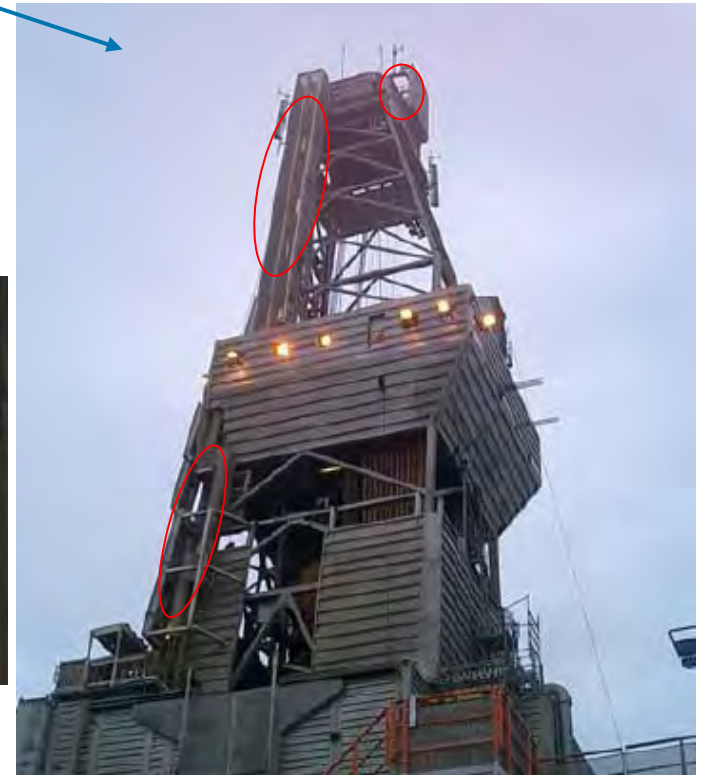
Loose Heat Shielding in Derrick

Loose heat shield mesh



Areas protected by heat shields

Detail:
Welded mesh



Loose / damaged casing protector

TODAYS PHOTO BREFDORD DOLPHIN

15.04.09



WHEN OFF LOADING 13 3/8" CASING FROM SUPPLY VESSEL. DECK CREW OBSERVED THAT SOMETHING WAS WRONG WITH ONE OF THE PROTECTORS.

THEY HAD A LOOK AT THE PROTECTOR AND SAW THAT THE IRON COVER OF THE PROTECTOR WAS LOOSE. THIS PROTECTOR IS MADE OF ONE PART PLASTIC INSIDE AND ONE STEEL COVER OUT SIDE, AND FOR SOME REASON THEY HAD COME APART. SEE PHOTO NR 2.

Protectors on Casing

Event description

From time to time there are incidents with loose protectors, and even protectors that fall off during handling to and from vessels. Pin end protectors consist of two parts, the inner part made from plastic and an outer part made from steel. These can part/ split in two.

Box end protectors are only one piece plastic, which are often knocked loose, or insufficiently installed.

Loose steel part: 1,5kg, up to 25 m, potential 368 joule

Cause

The main reason seems to be the handling of the casings, that causes the protectors to be knocked loose, break or fall off.

Recommended actions / Lessons learned

Control procedures (quality control) on-shore?

Look at the possibility for new solutions?

Light- weight protectors?

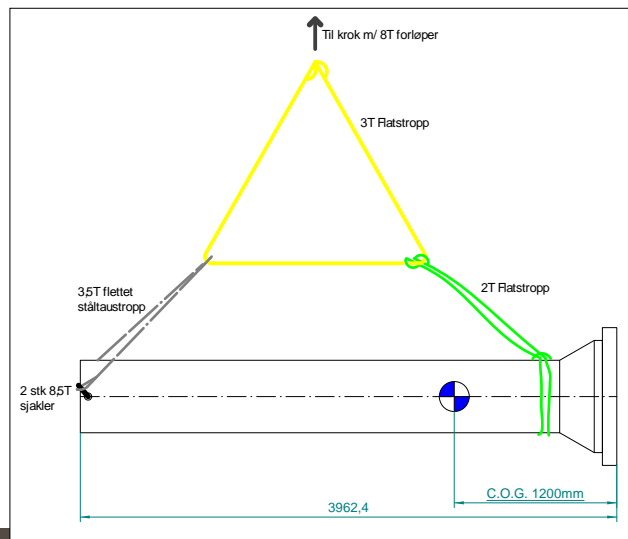


Installation	
Date	dd.mm.yyyy
Reference	Synergi no.: xxxxxxxx

Falling Object during lifting operation

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Skisse av utført rigging



StatoilHydro

Wind socks and wind gauge rotor

1 kg, 20 m, 196 joule



50 kg, 10 m, 4900 joule

