

# High Potential Near Miss.

## Atwood Eagle – 15<sup>th</sup> December 2009.

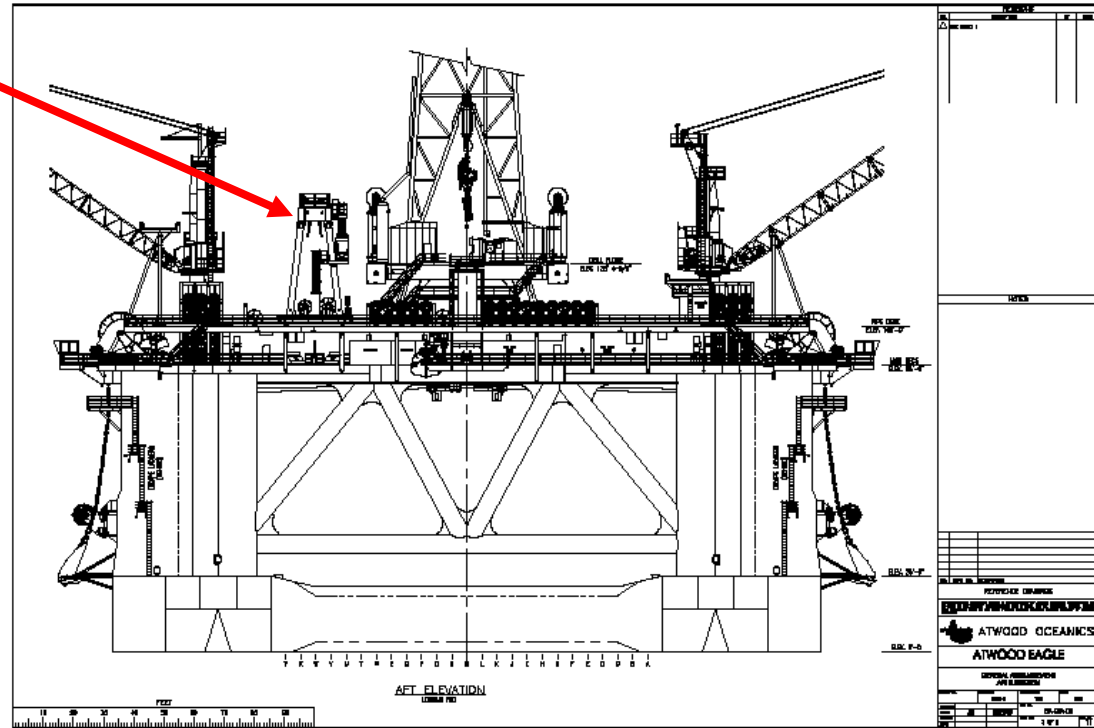
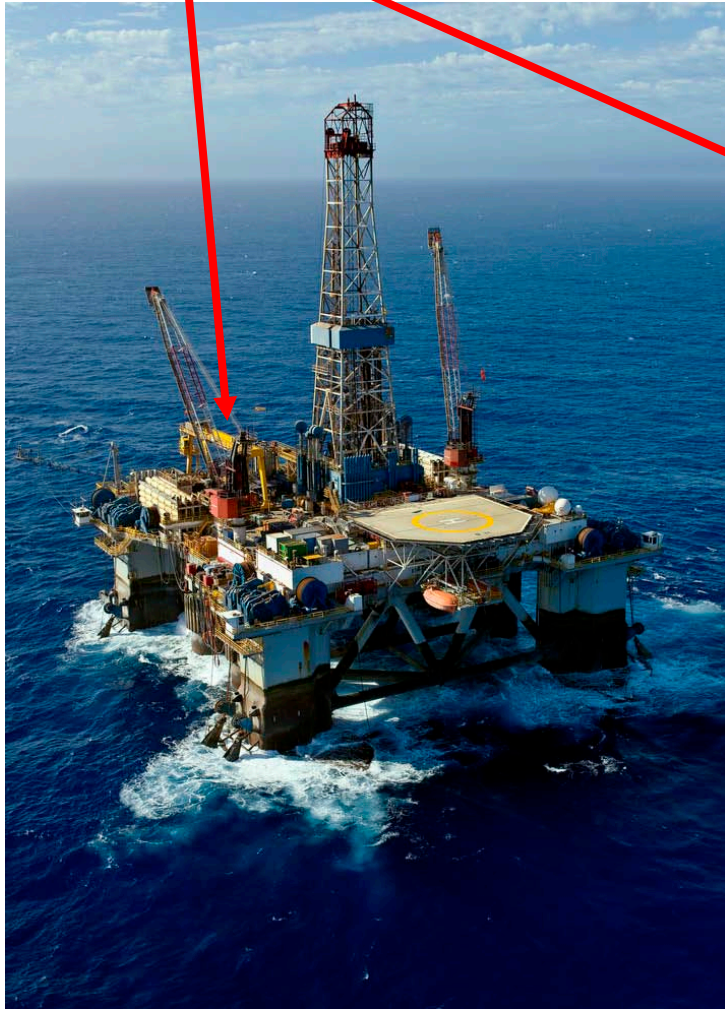


Drillsafe – 3<sup>rd</sup> June 2010  
Adelaide

Steve Ramsey – Operations Manager – Atwood Eagle  
Ben Prain – Regional HS&E Coordinator

# The Atwood Eagle.

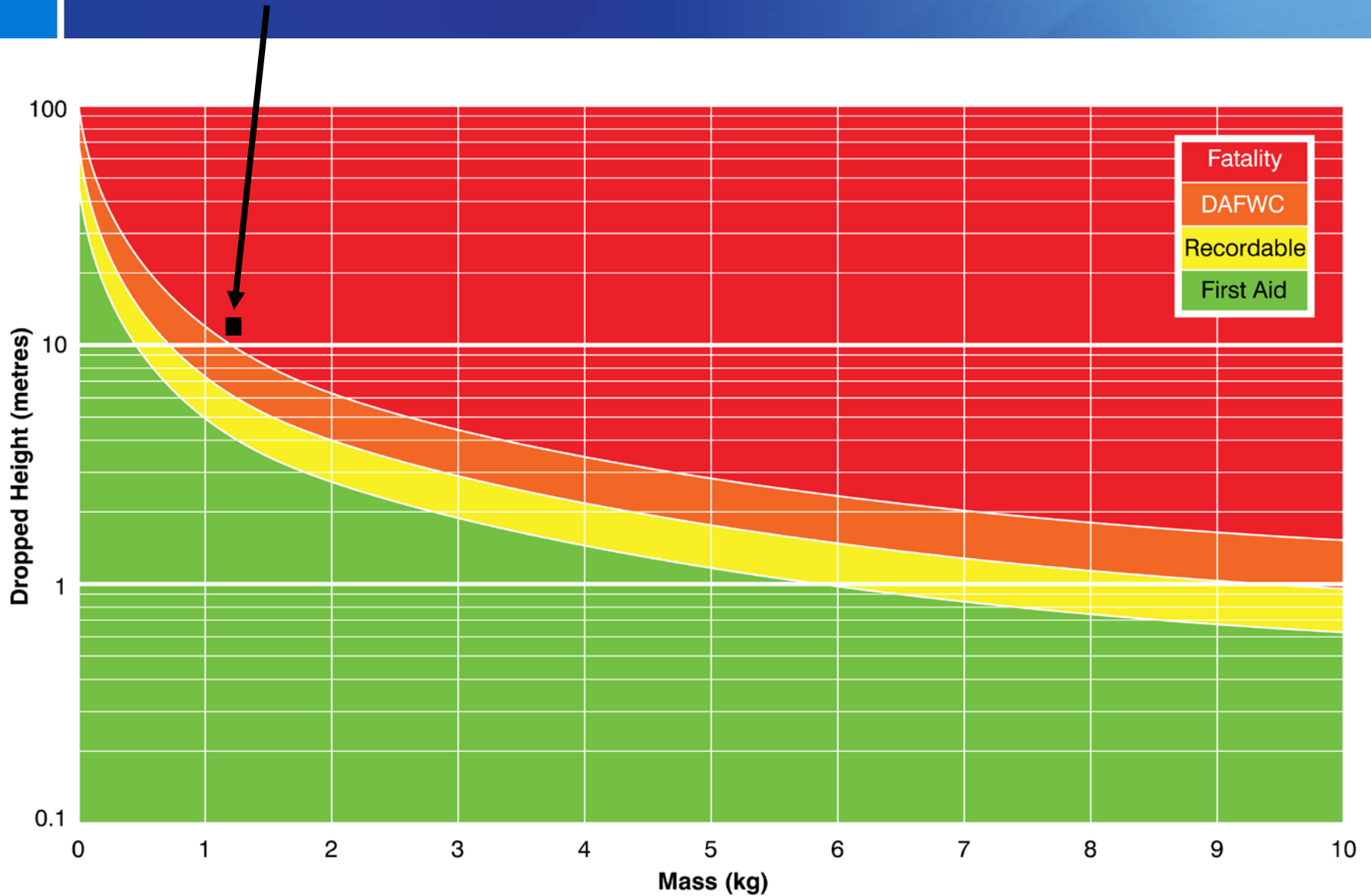
Gantry Crane – Traverses Pipe Deck



## Incident Overview.

- At approximately 22:15 on the 15th of December a Lead Roustabout (Dog-man) was walking along the Pipe Deck, when he noticed a steel inspection plate on the deck.
- The 2.55lb (1.155kg) inspection cover plate had fallen a maximum 11.45m off the forward end of the gantry crane due to corrosion of the retaining bolts.
- This event had the potential to cause a fatality if the plate had struck someone, based on the DROPS calculator.

# DROPS Calculator.



# Incident Photographs.



Inspection plates in situ, used for initial assembly of crane structure and then subsequently for inspection of the integrity of the hidden assembly bolts.

The inspection plates are located at both ends of the gantry crane main cross beam.

The inspection plates are held in place with two horizontally spaced 10mm bolts.

# Incident Photographs (cont).

Plates removed from fwd end as safety precaution following incident.



Inspection plate that fell to the deck. (1.15Kg fell 11.45m).



Inspection plates left open, attached by one securing bolt. (NB. All inspection plates have been removed following the incident).

# Incident Timeline.

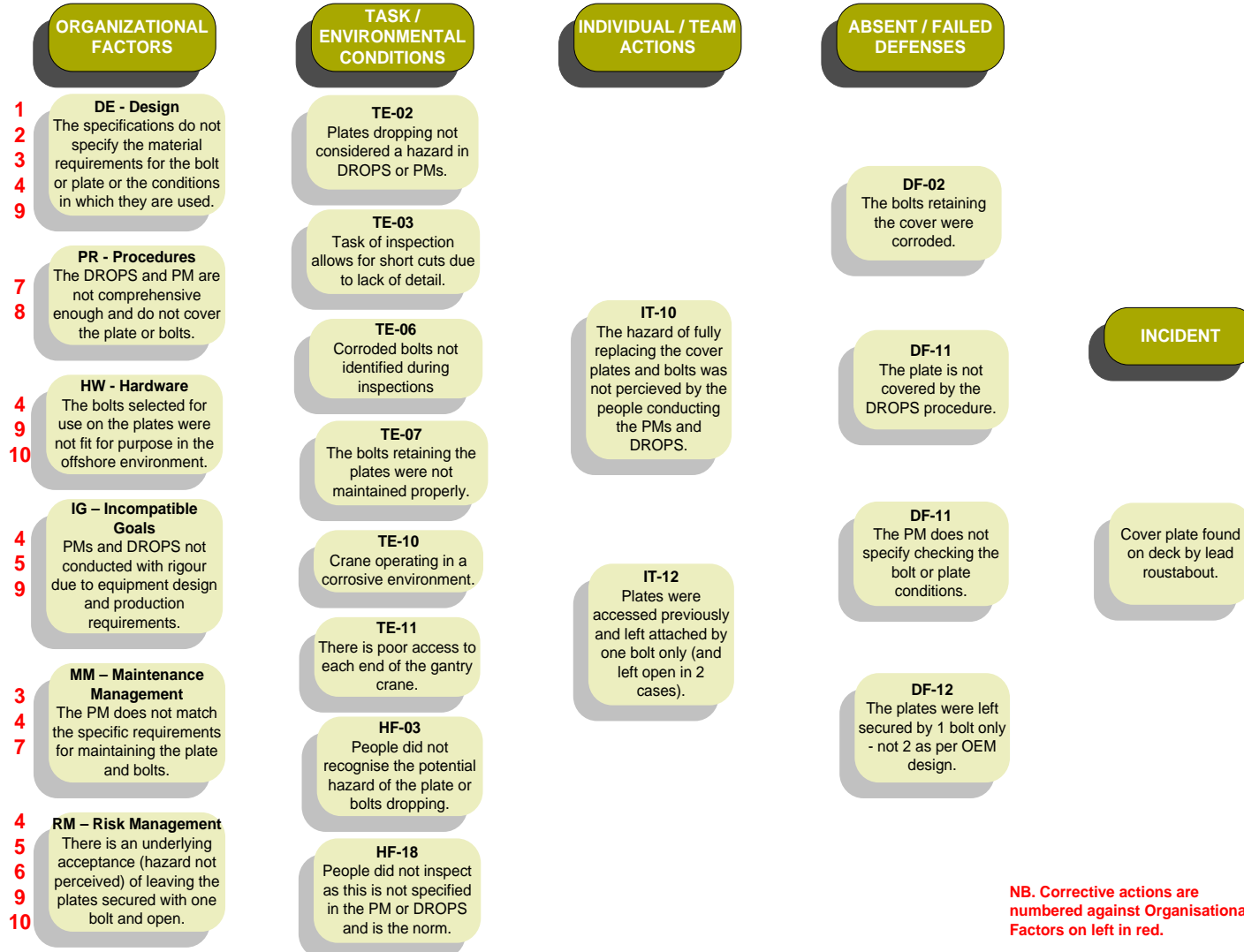
<b>Date/Time:</b>	<b>Brief Event Description:</b>
Prior to 2002	Atwood Crane Design Specification utilised prior to procurement and installation in Greece.
Oct - Nov 2002	Gantry Crane installed and commissioned on the Eagle in Greece.
Nov 2002 - Jan 2004	Rig operates in Angola - Normal maintenance and usage of the gantry crane.
Feb 2004 - Dec 2009	Rig arrives and operates in Australia - Normal maintenance and usage of the gantry crane.
15 <sup>th</sup> Dec 2009	Very little use of gantry crane during day shift. No use into the night shift.
15 <sup>th</sup> Dec 2009 - 22:15	*** Incident - Inspection plate found on pipe deck.***
22:15	Plate reported immediately to Barge Engineer and Tour Pusher.
22:30	TP requests Crane Operator to move crane to the starboard end of the rig and it is barriered off. The other cover plates are removed by a roustabout from the forward end of the crane by grinding off the bolts.
16 <sup>th</sup> Dec 2009 - 05:00	TP informs OIM of event and OASIS report & investigation is initiated.

## Incident Investigation.

- Atwood Incident Cause Analysis Method (ICAM) used to investigate the incident.
- Investigation conducted in 2 stages due to impending cyclone down-manning.
- Rig based investigation completed on the 16/17 December 2009 including :
  - OIM, STC, RMS, WEL Wellsite Manager.
- Shore-base review and analysis completed on 18 & 21/22 December 2009 including:
  - Steve Ramsey - Operations Manager, Ben Prain – Regional HSE Coordinator, Mark Edge - WEL Drilling Superintendent, Steve Richardson - WEL HS&E Advisor.

# Incident ICAM Chart.

## ICAM CHART - Near Miss – High Potential – Gantry Crane Inspection Cover Plates - I-0912-0016.



NB. Corrective actions are numbered against Organisational Factors on left in red.

# Incident – Organisation Factors (Root Causes).

## 1. DE – Design:

- The specifications do not specify the material requirements for the bolt or plate or the conditions in which they are used.

## 2. PR – Procedures:

- The DROPS and PM are not comprehensive enough and do not cover the plate or bolts.

## 3. HW – Hardware:

- The bolts selected for use on the plates were not fit for purpose in the offshore environment.

## 4. IG – Incompatible Goals:

- PMs and DROPS not conducted with rigour due to equipment design and production requirements.

## 5. MM – Maintenance Management:

- The PM does not match the specific requirements for maintaining the plate and bolts.

## 6. RM – Risk Management:

- There is an underlying acceptance (hazard not perceived) of leaving the plates secured with one bolt and open.

## Incident Findings.

1. No one saw the cover plate fall from the gantry crane.
2. The bolts holding the cover plate had corroded substantially.
3. 2 of the cover plates on the aft end of the gantry crane are only retained by 1 bolt.
4. It could not be determined when the cover plates were initially opened to check condition of internal bolts.
5. The bolts retaining the cover plate were not marine grade steel and not maintained for offshore environment usage.
6. The PMs do not specifically require the cover plates to be checked.
7. The DROPs for the crane do not consider the cover plates or bolts as a potential dropped object.
8. The potential for this to occur with similar cranes is to be shared.

## Incident Lessons Learnt.

1. The PM and DROPS processes require review to determine inclusion of other potential hazards from cover plates.
2. The potential for these plates to drop on other gantry cranes and equipment will be shared via alerts.
3. The procurement specifications of equipment needs to consider the use of "marine grade" equipment/fittings and the ongoing use, access and maintenance of this equipment.
4. The hazard awareness of people conducting PMs or DROPS needs to be reinforced regarding the acceptance of "normal" conditions of equipment.

## Incident Corrective Actions.

1. Gantry crane segregated and barriered off on rig - COMPLETE.
2. The other cover plates were removed from the forward end of the crane - COMPLETE.
3. Alternative materials for cover plate to be considered and installed including:
  - utilize a gasket sealant between cover plate and crane structure, keeping in mind that it should be easily accessed and fit for purpose in the marine environment.
  - (Note: It is not recommended to use Stainless Steel fasteners in this case) – COMPLETE – Perspex covers installed.
4. Communicate the incident and maintenance expectations with the trades and ask for feedback regarding possible improvements - COMPLETE.
5. Review the incident at Pre-tour and Weekly safety meetings - COMPLETE.

## Incident Corrective Actions (cont).

6. Create Atwood HSE Notification and Industry alert to share incident and learning's - COMPLETE.
7. Update PM to specify checks of new covers and/or bolts – COMPLETE FOR MONTHLY/6 MONTHLY & ANNUAL.
8. Update DROPS register to include cover plates and bolts and other potential dropped objects for the gantry crane - COMPLETE.
9. Ensure a suitable risk assessments is conducted when the new covers are installed to consider latent hazards – AFTER ACTION 3 IS COMPLETED.
10. Ensure rig assessments are conducted when upgrades or new equipment is procured and installed – COMPLETE – REQUIREMENT COMMUNICATED TO RIG AND HOUSTON ENGINEERING.



Thanks to Atwood and Woodside management for their support with the investigation and this presentation.

Questions?