



Weatherford[®]



Eliminating Exposure to Hazardous Drill Floor Operations through Automated Rig Systems

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Weatherford – Asia Pacific



Presentation Overview

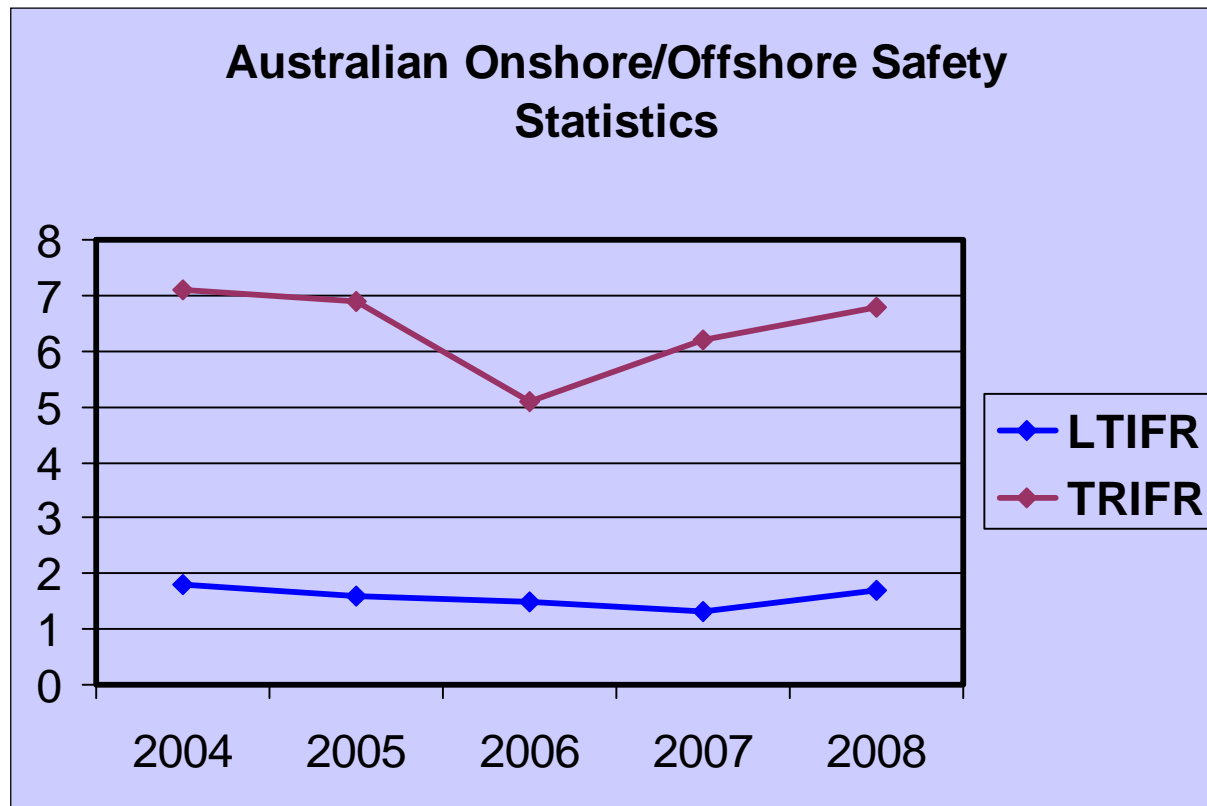
- Introduction
- Industry Safety Statistics
- Key Incident Indicators
- Industry Challenges
- Technology Available to the Market





Introduction

Escalating Incident rate in the upstream oil and gas industry in Australia



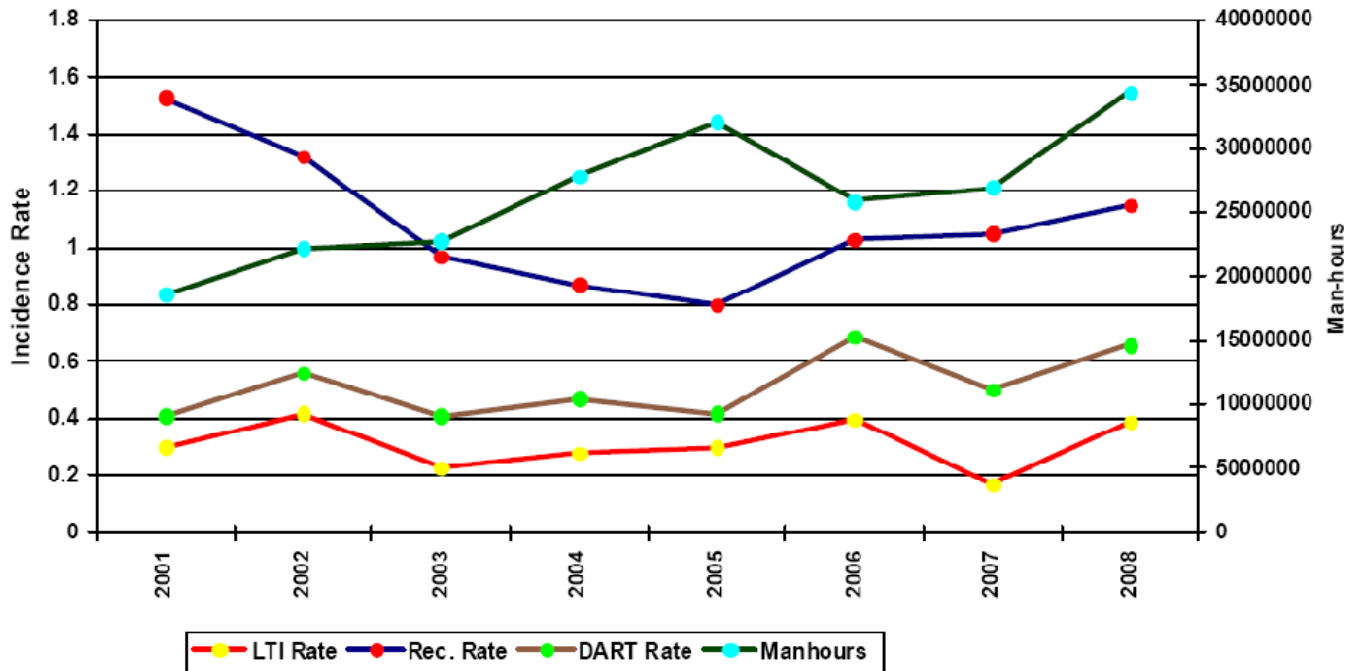


Industry Safety Statistics

- 2007 vs 2008

- Onshore LTI rate increased **14% to 0.40** per 200,000 man hours worked despite a **16%** reduction in work hours down by 3.15million work hours
- Offshore LTI rate increased **129% to 0.39** per 200,000 man hours worked despite a 21% increase in work hours up by 7.45million work hours

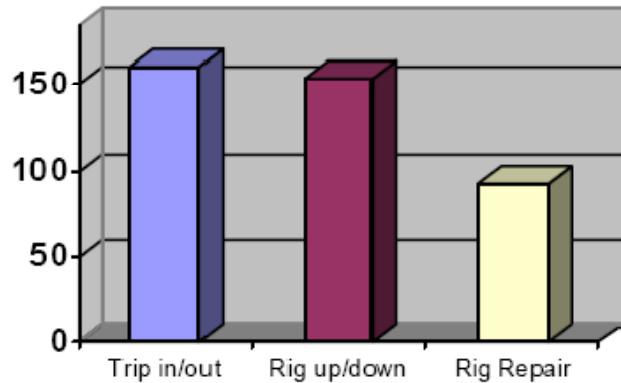
Asia Pacific Water Incidence Rates vs Man-hours (Figure 1)



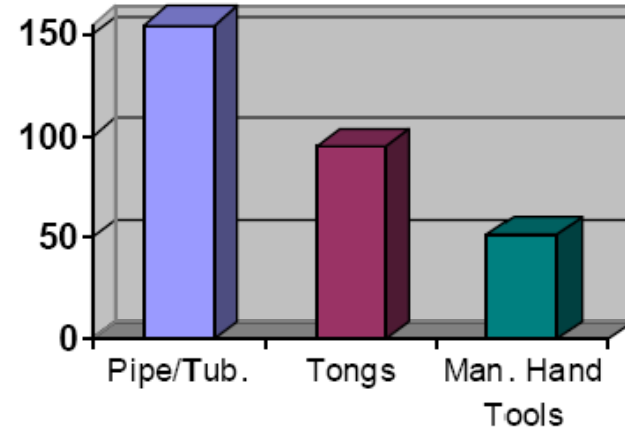


Key Incident Indicators

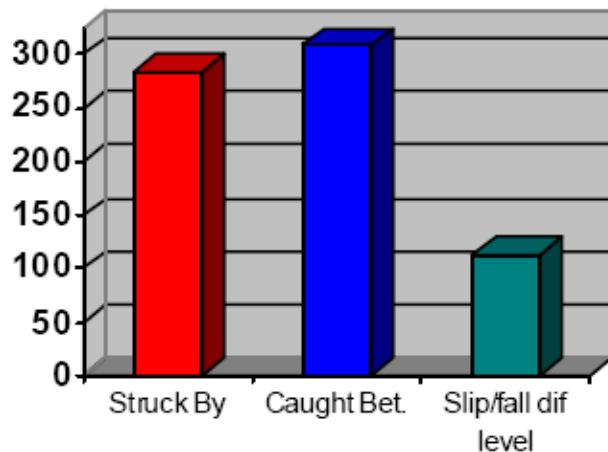
LTI by Activity
(Based on 1078 incidents)



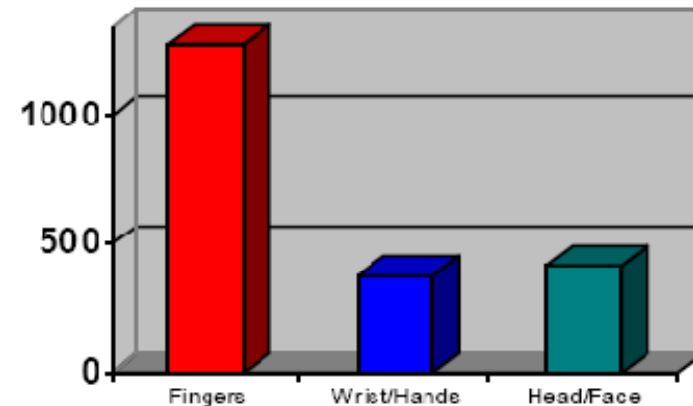
LTI by Equipment
(Based on 1078 incidents)



LTI by Incident Type
(Based on 1078 incidents)



REC by Body Part
(Based on 4141 incidents)

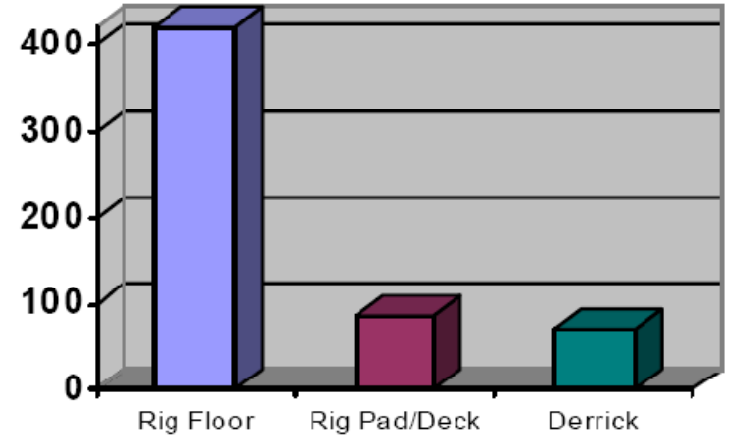




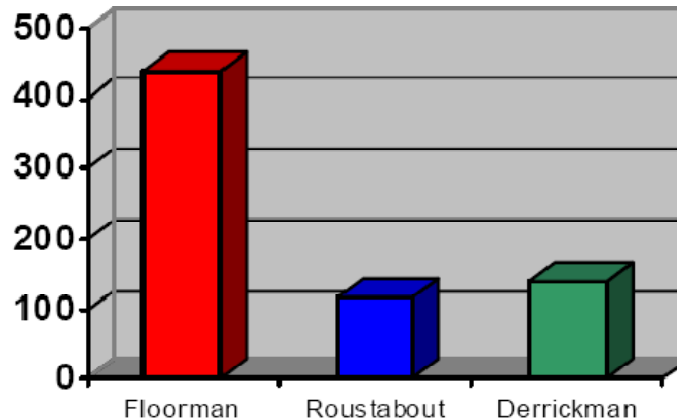
Key Incident Indicators

Rig Floor is the most dangerous place to work

LTI by Location
(Based on 1078 Incidents)



LTI by Occupation
(Based on 1078 incidents)

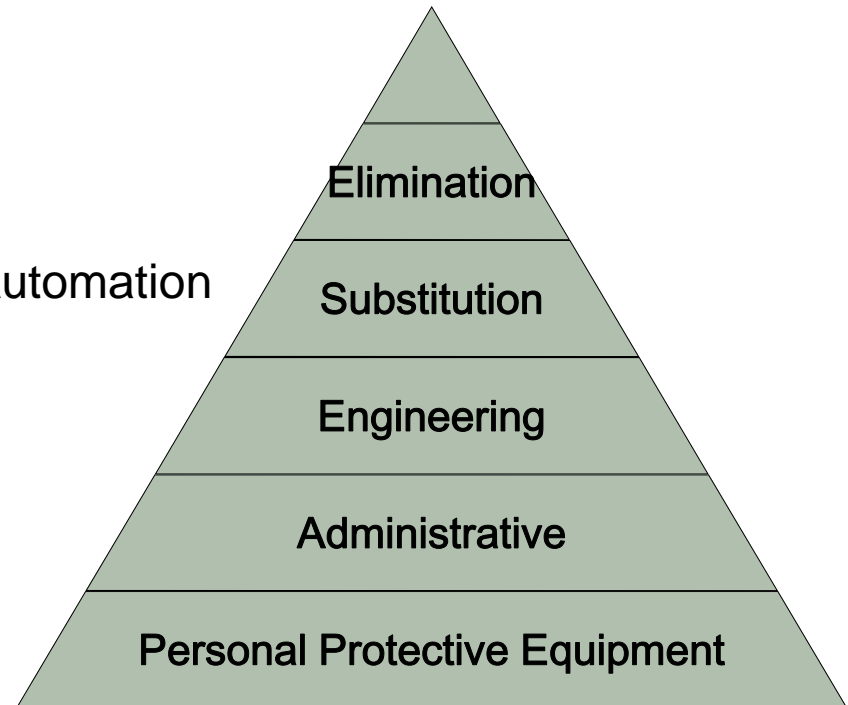




Safety Statistics

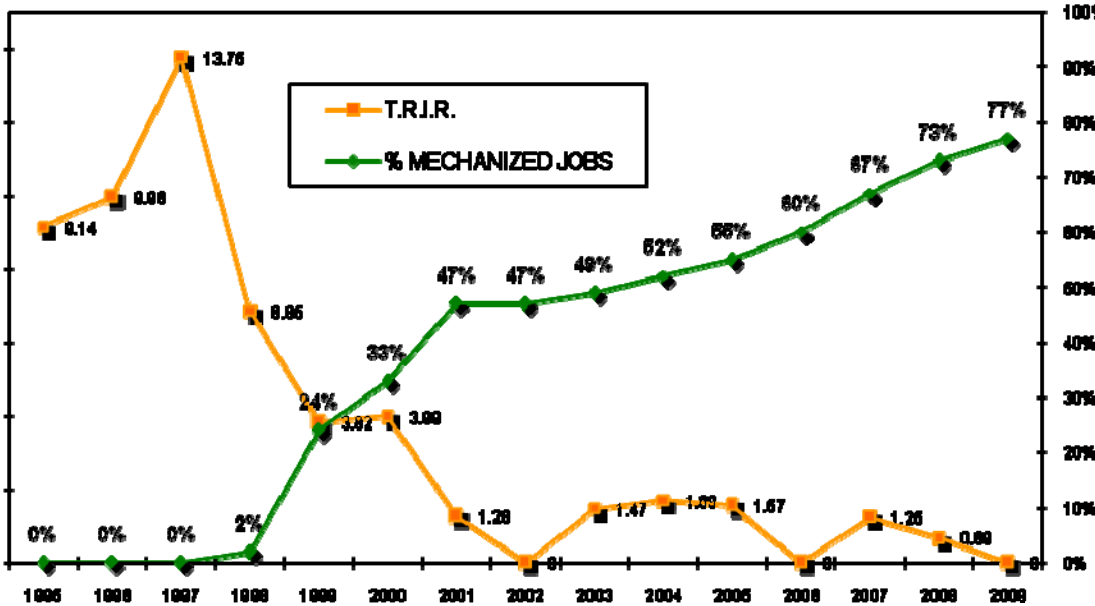
Reduce exposure of personnel on the rig floor by:

- Preparation and planning
 - Plan the Task
 - Robust Procedures
- Engineer solutions
- Substitute equipment
- Eliminate manual intervention through Automation





Introduction of Automation in GOM



Actual data set from TRS Lafayette, LA.

Mechanized Rig Systems vs. TRIR

- Weatherford focused on reducing exposure to injuries by increasing mechanized Rig Systems
- 2000-2009 YTD, “1” recordable incident and “0” lost time injuries on mechanized jobs

- Management commitment
- Implementation of safety programs
- Increase in Mechanization

= Incident Rate Decreases



Challenges faced

- Most drilling equipment companies focus on developing solutions for new build rigs not existing rigs in operation
- Perception in the industry that rig systems equipment is only applicable to high cost offshore operations
- Automated Rig Systems is not just about Safety – combining the right equipment or process can bring significant time savings and cost benefits

More focus needs to be applied to reducing exposure of personnel at the well site and eliminate manual intervention on older generation drilling rigs



Technology available to the market

Reduction in manual pipe handling

- Top Drive Systems
- Automated Iron Roughnecks
- Automated Power Slips
- Pick up and Lay down machines
- Power Catwalks and Power V-doors
- Offline Mobile Bucking Units
- Offline Stand Building
- Pipe management – cleaning, storage, delivery to the well site and rotary table





Technology available to the market

Removing ALL personnel from the derrick

- Stabbing arms
- Automated Pipe Racking Systems – Land and Offshore
- Remotely operated handling equipment





QUESTIONS?