

James Fisher and Sons plc  
Marine Services Worldwide



**Straininstall**

# Wellsite Monitoring Solutions (WMS)

IADC Spark Tank - August 2018



[www.straininstall.com](http://www.straininstall.com)

## Current situation



## 'Modern' sensor technology

Majority of load cells currently used at well sites are cabled or hydraulic.



**Trip hazards**



**Cost of cable replacements**



**Common cause of non-productive time (NPT)**

---

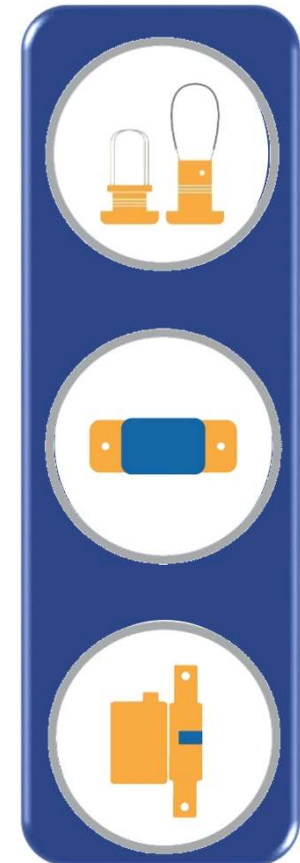
## The way forward



## Wellsite Monitoring Solutions (WMS)

A direct replacement for existing cabled sensors or hydraulic load cells:

- Wireless sensors
- Improved safety
- More efficient
- Drives data
- Cost effective



---

## Who we are

### Straininstall UK Ltd

- UK based engineering company
- >50 years - asset management and monitoring innovation
- Multiple industries including oil and gas (45 years)
- Monitoring innovation - effects of load, stress and fatigue
- Baker Hughes vendor-partner – wireline division
- Part of James Fisher and Sons plc



---

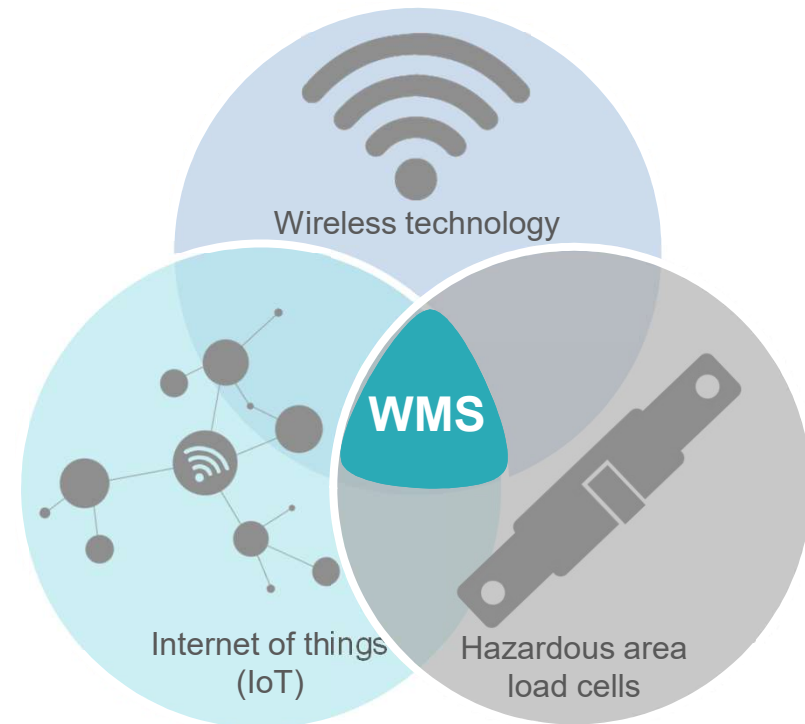
## Wellsite Monitoring Solutions



### Introducing WMS

- Brings together proven wireless technology, IoT and hazardous area approved load cells to improve wellsite safety and efficiency
- Also add wireless functionality to cabled sensors, with no need to replace existing equipment

#### Rapid digitalization



---

## Wellsite Monitoring Solutions



### Where is WMS used?

- Wireline logging
- Measurement-while-drilling – pressure monitoring
- Slickline - interventions
- Umbilical monitoring
- BOP lifting
- New applications – Where?



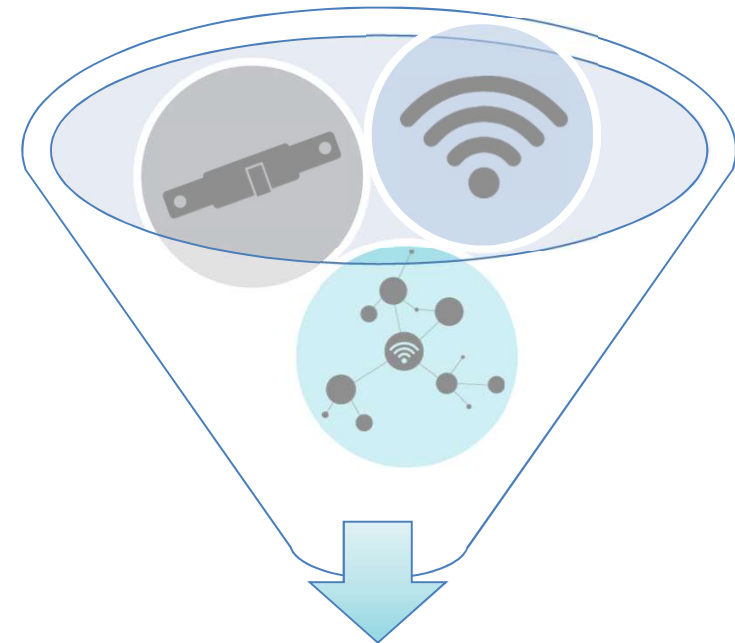
---

## Wellsite Monitoring Solutions



### Reasons to use WMS

- Safer – no trip hazards
- Production sooner
- Less non-productive time (NPT)
- Cheaper
- Improved accuracy of data
- Value added – multiple applications
- Wireless creates:
  - Additional value
  - Further innovation



Improved safety and operational efficiency

## Reasons to use WMS

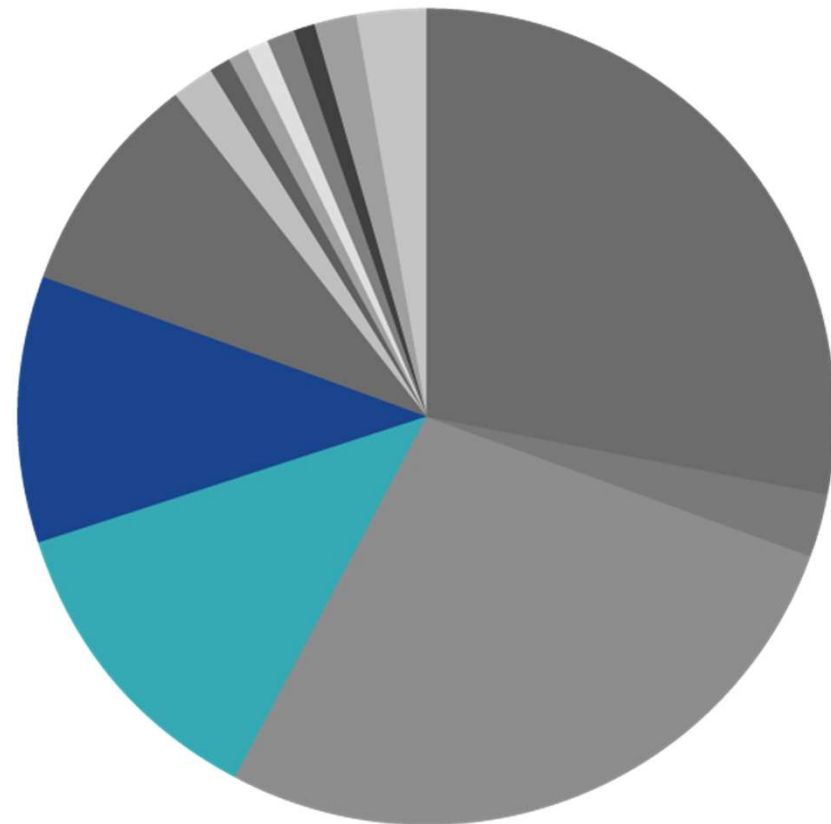


### US land total lost time incidents by incident type

(chart 7) Based on 114 incidents

Key:

- Slip/fall: different level 10.53%**
- Slip/ fall: same level 12.28%**
- Struck by 28.07%
- Struck against 2.63%
- Caught between/in 27.19%
- Strain/overexertion 8.77%
- Contact with chemicals/fluids 1.75%
- Electrical shock 0.88%
- Flame/heat/steam (contact/exposed) 0.88%
- Debris 0.88%
- Cut 0.88%
- Jump 0.88%
- Sprain 1.75%
- Heat exhaustion/heat stroke 2.63%





---

## Our customers



### Present time

- Service companies
  - Major
  - Smaller

### Next steps

- Operators
- Drilling contractors
  - Offshore
  - Onshore

## The way forward



## Opportunities and future potential

New product needs opportunity and market:

- Opportunity – Bakes Hughes wireline request cable free load cells
- Market – retrofit to wired sensors across industry
- Market innovation opportunity
  - Thought leadership with BH
  - Co-developed new wireless system - industry leader
  - Oil field digitalization– right time, logical next step
  - Other receptive customers – scalable product line



---

## The brief



## Challenge

Customer driven request - Zone 1 hazardous area system

1. Wireless capability - remove need for cabled connections
2. Plug and play capable:
  - a) Mechanical compatibility with existing wellsite equipment without modification
  - b) Data compatibility with existing systems
3. Integrated logging – including a direct data logging capability in addition to the external data interfaces
4. Modular system would greatly increase usefulness



---

## Our innovation



## Reaction to Baker Hughes request

- Designed modular system – wireline first focus
  - Successful testing 2015. BH Montrose
  - Offshore use GOM 2017 – present
  - Data to existing acquisition system
  - Production quantities now available
- Wider application range of wireless solutions
  - MWD
  - Slickline

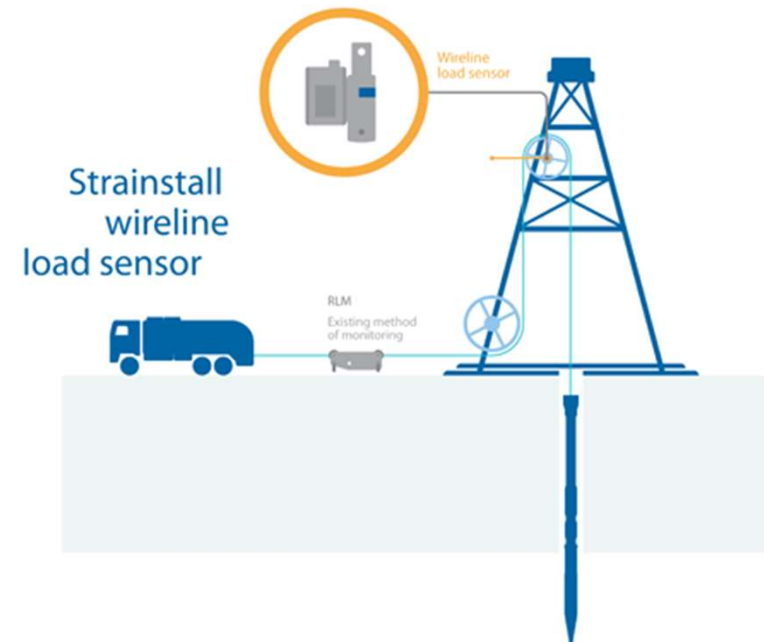


## Wireline application



## Results - wireline

- Data comparison: wireless vs wired
- Value:
  - Direct measurement – top sheave most accurate location
  - Rig up and re-rigging time saved
  - NPT risk significantly lowered
  - Cost of cable replacement saved \$325,000 USD pa
- Supply of additional units

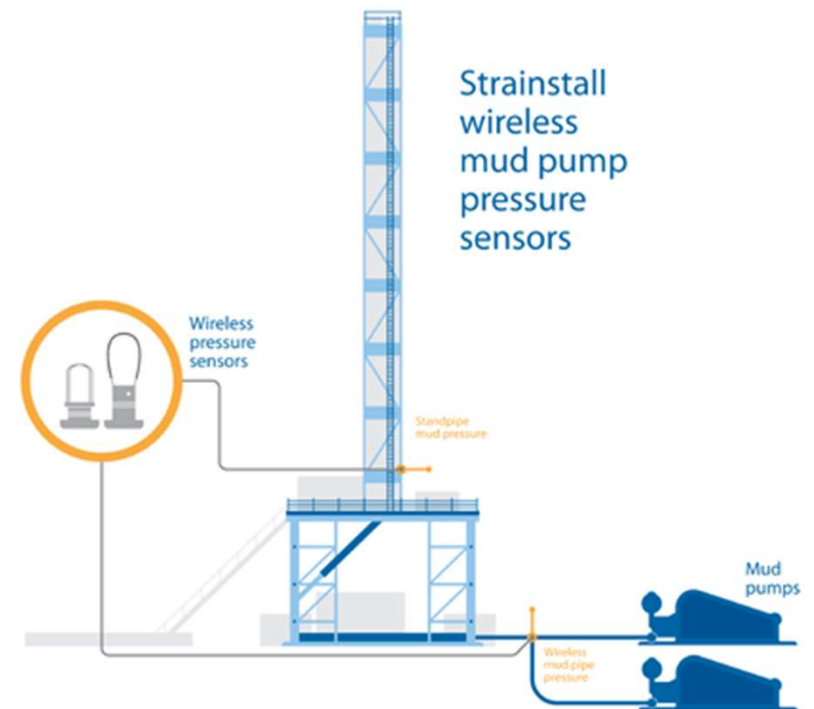


## Measurement while drilling application



### Results - MWD

- Existing, trusted pressure transducer
- High frequency sampling
- Frequency response test successful
- Will ensure accurate MWD decode
- Delivered to major MWD SC for trial
- Status: awaiting data
- Value:
  - Rig up time saved
  - NPT risk significantly lowered
  - Trip hazard removal

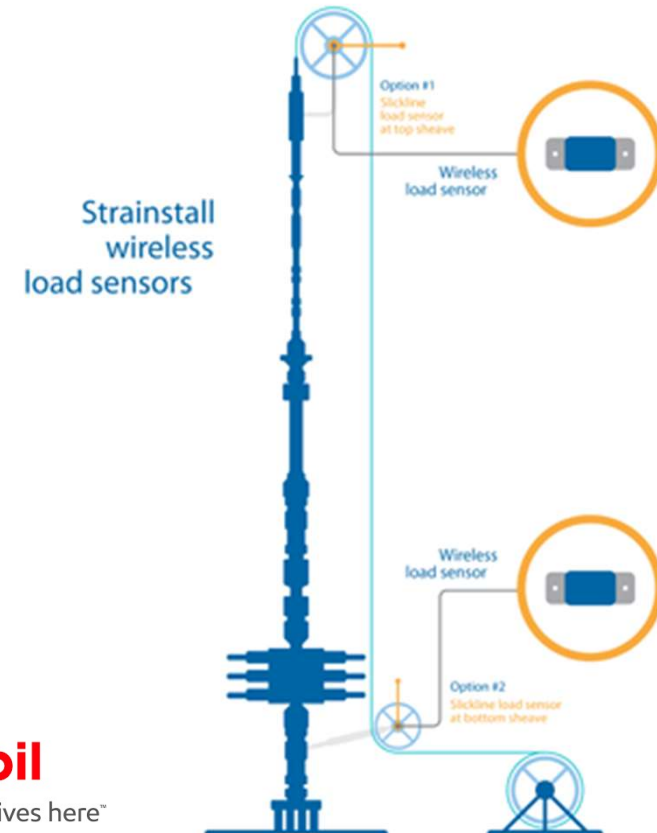


## Slickline application

### Results - slickline

- Digital slickline tension system
- Used Offshore Newfoundland
- Trials UK & USA land
- Hay pulley – Improved data accuracy vs hydraulics
- Additional wireless benefits:
  - Data logging (min 10Hz)
  - Data to network / desk / real time analytics
  - Client gets operational oversight
  - Database + “Flight recorder” function
  - Operator competency check
  - No additional training

 Strainstall



## Benefits delivered



## Wellsite Monitoring Solution benefits

### Safety

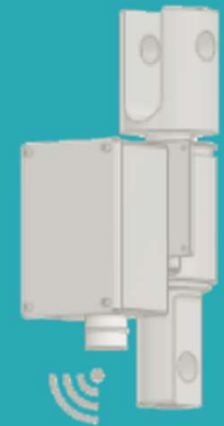
- Hazard removal
- Risk reduction

### Efficiency

- Reduced costs
- Operational efficiency gains
- NPT reduction
- Increased asset availability
- Retrofit / plug & play

### Data

- Logging (post-job data analysis)
- Accuracy
- Operational oversight by client
- Database creation
- New capabilities – add extra sensors to network





---

Word from the industry



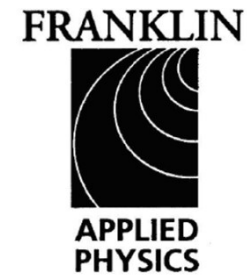
***“ We want to see innovation that provides HSE benefits and efficiencies but also guarantees existing cost savings remain unaffected.”***

Statoil, OTD – Norway

Who are our customers



## Customers and accreditations



# Improving wellsite safety and efficiency through wireless measurement technology

- Wireless
- Safer
- More efficient
- Drives data
- Cost effective



Thank you

 Straininstall

Any questions?

Jim Profit  
Business Development Manager – WMS  
Straininstall UK Ltd  
M: +44 (0) 7809 339 521  
E: [Jim.Profit@straininstall.com](mailto:Jim.Profit@straininstall.com)

