

PRODUCTION EFFICIENCY: REVERSING A DECLINING TREND.

Institution of
**MECHANICAL
ENGINEERS**

Conference
11-12 November 2014
Mercure Ardoe House Hotel, Aberdeen
www.imeche.org/events/C1419

In partnership with:

Oil & Gas UK
the voice of the offshore industry 

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INTRODUCTION

From a historical average of around 80%*, the UKCS now only produces 60%* annually of the hydrocarbons it should.

Attend **Production Efficiency 2014** to learn how operators such as **BP, Maersk Oil** and **EnQuest** are working towards extending asset lives safely and reliably.

Discover with **Nexen** how you can successfully improve production rates and help prolong the life of the UKCS oil and gas province.

Hear an update on the recently reviewed **HSE KP4** programme and discover what government organisations such as **DECC** recommend to continuously implement safety improvements of offshore installations.

Discover how better management of turnarounds and approaches to wrench time are improving production efficiency whilst safely extending operations beyond their asset design lives.

*Production has fallen by 38% between 2010 and 2013, meaning the UKCS produced around 500 million boe less over the period.**

* Figures taken from The Wood Review, February 2014.

BENEFITS OF ATTENDANCE

- **Understand** the day-to-day challenges that face engineers at Maersk Oil and BP as they seek to help improve production results across the UKCS
- **Learn** how Nexen have implemented effective solutions to improve their rates of production
- **Recognise** the benefits of investing in life extension at Thistle
- **Identify** the collaborative strategies which can support UKCS operators achieve a higher rate of production from Oil & Gas UK
- **Analyse** with Talisman-Sinopec recent production loss data and assess why there has been an increase in unplanned losses
- **Hear** how the coordination of planned shutdowns and turnarounds will strengthen production efficiency across the UKCS

| | |
|--------------------|--|
| WHEN | 11-12 November 2014 |
| WHERE | Mercure Ardoe House Hotel, Aberdeen |
| BOOK ONLINE | www.imeche.org/events/C1419 |

OUR EXPERT SPEAKING PANEL INCLUDES:



OONAGH WERNGREN
OPERATIONS DIRECTOR
OIL & GAS UK



ARCHIE KENNEDY
MANAGING DIRECTOR AND VICE PRESIDENT EUROPE
NEXEN



JOHN COWIE
AREA MANAGER, NORTHERN NORTH SEA
ENQUEST

See page 6 for full speaker list

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PROGRAMME

DAY 1 TUESDAY 11 NOVEMBER 2014

08:30 REGISTRATION AND REFRESHMENTS

09:00 CHAIR'S OPENING REMARKS
Simon Rees, Member of the Offshore Engineering and Upstream Committee, Institution of Mechanical Engineers

SETTING THE SCENE ACROSS THE UKCS

KEYNOTE ADDRESS

09:10 COMMITTED TO INCREASING PRODUCTION EFFICIENCY
Oonagh Werngren, Operations Director, Oil & Gas UK

- An overview of production efficiency from an Oil & Gas UK perspective
- Looking at the wider operational picture: lack of investment into barrels, fewer new wells and a rise in operation expenditure
- The development of the Production Efficiency Task Force as a solution for the offshore industry

09:40 MAXIMISING THE RECOVERY OF UKCS OIL AND GAS
Production Efficiency Project Manager (yet to be appointed), DECC

- Actual versus ideal: the current situation on the UKCS and what can be done to improve this
- Evaluating the importance of asset stewardship in light of the Wood Review
- Working with and supporting the new regulator as it comes into power from September

10:10 NETWORKING REFRESHMENT BREAK

KEYNOTE ADDRESS

10:40 SUSTAINING AN IMPROVED PRODUCTION ENVIRONMENT
Archie Kennedy, Managing Director UK and Vice President Europe, Nexen

- Nexen's history on the UKCS: the discovery of Buzzard and its importance as a newer field
- The contribution thus far to the North Sea industry which has supported the overall increase in production results
- A solid environmental performance offshore to further support a better production environment onsite

11:10 DESIGNING FOR PRODUCTION EFFICIENCY AND AVAILABILITY: AN OPERATOR PERSPECTIVE
Cris Fells, Mechanical Engineer, Global Concept Development, BP

- Setting achievable production efficiency targets early in major projects
- Brown field developments; splicing in work to minimise production impact
- Making early equipment configuration decisions

11:40 IMPROVING PRODUCTION EFFICIENCY THROUGH TARGETED MAINTENANCE
Official Representative, ABB

- Are we doing the right maintenance?
- Focusing on production losses / bad actors
- Underpinned by an Evergreen Asset Life Strategy

12:10 NETWORKING LUNCH

LIFE EXTENSION FOR AGEING OFFSHORE INSTALLATIONS SESSION CHAIR: ROBERT PATERSON, HEALTH, SAFETY AND EMPLOYMENT ISSUES DIRECTOR, OIL & GAS UK

13:10 AN UPDATE ON KP4 AND THE HEALTH & SAFETY EXECUTIVE'S FOCUS BEYOND 2014
Andrew Duncan, Principal Inspector: KP4, Materials & Corrosion Engineering, Energy Division, HSE

- An overview of the findings of the KP4 final report
- Changes seen in the offshore industry in response to KP4
- What now for ageing and life extension of offshore installations to achieve continuous safety improvements?

PROGRAMME

- | | |
|-------|--|
| 13:40 | LATE LIFE EXTENSION PROJECT: THISTLE PLATFORM John Cowie, Area Manager, Northern North Sea, EnQuest <ul style="list-style-type: none"> Preparing to recover 25 million barrels over the next 15 years and overcoming the challenges to reach the target Working with existing wells and identifying potential exploration and drilling areas Improving structural and topside integrity whilst maintaining a high standard of safety |
| 14:10 | NETWORKING REFRESHMENT BREAK |
| 14:40 | SUPPORTING AGEING OFFSHORE INSTALLATIONS VIA AN AGEING LIFE EXTENSION STRATEGY Enrique Sandoval, Programmes Manager, BP <ul style="list-style-type: none"> Acknowledgement of KP4 and its benefits to North Sea operators Engineering a better production result on ageing assets through maintenance and investment Recognising how life extension programmes are cost-effective solutions |
| 15:10 | A PRACTICAL WAY TO INCREASE PRODUCTION EFFICIENCY AND REVERSE OIL AND GAS PRODUCTION DECLINE Dr Sib Akhtar, Technical Director, MSE (Consultants) Ltd <ul style="list-style-type: none"> Compressor re-design Changing reservoir conditions Extending the operating life |
| 15:40 | THE NORWEGIAN BARRIER REGULATION AND ITS RELEVANCE TO SAFETY Gerhard Erdsal, Principal Engineer Structural Integrity and R&D Manager, Petroleum Safety Authority (Norway) <ul style="list-style-type: none"> Example of the interaction between organisational, operational and technical barrier elements for the Norwegian Continental Shelf Performance influencing factors for organisational, operational and technical barrier elements improve future results The significance of performance standards in barrier management |
| 16:10 | CHAIR'S CLOSING REMARKS Simon Rees, Member of the Offshore Engineering and Upstream Committee, Institution of Mechanical Engineers |
| 16:20 | END OF CONFERENCE DAY ONE |

DAY 2 WEDNESDAY 12 NOVEMBER 2014

- | | |
|-------|---|
| 08:30 | REGISTRATION AND REFRESHMENTS |
| 09:00 | CHAIR'S OPENING REMARKS Simon Rees, Member of the Offshore Engineering and Upstream Committee, Institution of Mechanical Engineers |
| | IDENTIFYING THE BIGGEST CHALLENGES AND THE RIGHT SOLUTIONS |
| 09:10 | COORDINATING PLANNED SHUTDOWNS ACROSS THE UKCS Brenda Wyllie, Production Manager, Oil & Gas UK <ul style="list-style-type: none"> Identifying how the PETF, through data and recommendations can reduce the rates of unplanned shutdowns Understanding the need for industry guidelines on planned shutdowns to ensure operators are working together The benefits of creating a dialogue between operators on the UKCS to minimise the delays surrounding shutdowns |
| 09:40 | UNPLANNED LOSSES: PROVIDING THE FACTS Steve Gardyne, Head Production Engineering and Operations Services, Talisman-Sinopec <ul style="list-style-type: none"> An overview of production loss data presented by PETF Identification of best practices across the wider industry Pin pointing the gaps where improvements must be made to prevent future unplanned production losses |
| 10:10 | SUSTAINING A HIGH LEVEL OF PRODUCTION IN A SAFE ENVIRONMENT Stuart Hawksworth, Head Strategic Consultancy Major Hazards Unit, HSL <ul style="list-style-type: none"> An analysis of current limitations on offshore assets and how restrictions have arguably caused a decrease in production results Identifying ways to increase production without reducing the safety levels of the operational environment Safety measures versus on-site licenses and how HSL can provide greater support to the offshore environment and its personnel |
| 10:40 | NETWORKING REFRESHMENT BREAK |

PROGRAMME

PANEL SESSION 11:10

SEEKING THE RIGHT COLLABORATIVE APPROACH

Delegates will have the opportunity to review the key issues raised by the morning presentations and discuss solutions that can be implemented by operators to sustain better production results

- 1. What collaborative actions could the industry initiate immediately that would improve the performance of UK plc?**
- 2. What technological developments could assist in improving production efficiency?**
- 3. What actions could the industry take to optimise and expand its human resource performance; utilising the capabilities of offshore personnel to drive better approaches to maintenance?**
- 4. How can costs to improve production efficiency be justified by operators?**

Delegates will have the opportunity, upon registration, to put forward questions to the panel.

Panelists:

- **Simon Rees**, Member of the Offshore Engineering and Upstream Committee, Institution of Mechanical Engineers
- **Brenda Wyllie**, Production Manager, Oil & Gas UK
- **Steve Gardyne**, Head Production Engineering and Operations Services, Talisman-Sinopec
- **Stuart Hawksworth**, Head Strategic Consultancy, Major Hazards Unit Health and Safety Laboratory (HSL)

12:10 NETWORKING LUNCH

LOOKING TO THE FUTURE: SUSTAINING A HIGH LEVEL OF PRODUCTION

13:10 MAINTAINING A STRONG RESPONSE TO PRODUCTION EFFICIENCY

Adam Hull, Head of Production, Maersk Oil

- The identification process; analysing the causes of low production rates
- Understanding the life-cycle management process and its ability to support the improvement of production efficiency
- Continuing to increase production capabilities for both existing and new developments

13:40 MANAGING RELIABILITY AND INTEGRITY TO DELIVER PRODUCTION EFFICIENCY

Dr Caroline Roberts-Haritonov, Director, Astrimar

- Use of reliability engineering techniques to identify potential causes of unplanned failure
- Use of system reliability engineering to identify critical nodes in production and delivery infrastructure
- Use of reliability and integrity data and models to measure and forecast production efficiency
- Prioritisation of actions to minimise the potential for, and mitigate effect of, unplanned failures

14:10 NETWORKING REFRESHMENT BREAK

14:40 MEASURING UP! USING RAM TO IMPROVE PRODUCTION EFFICIENCY

Neil Wragg, Principal Consultant, UK Safety & RiskDNV GL

- Use of RAM modelling to benchmark production efficiency against 'industry standard' performance
- Extracting value from historical asset data to forecast future performance - "the one-year look-ahead"
- Asset owners and operators are able to identify, quantify and prioritise performance improvement opportunities
- Decision support for targeting OPEX investment - "Cost vs Benefit"

15:10 USING A COLLABORATIVE ENVIRONMENT TO DRIVE PRODUCTION EFFICIENCY IN THE NORTHERN NORTH SEA

Sylvain Peytier, Director UK Field Operations, Total E&P

- SMART (Support and Monitoring of Asset in Real Time) room set-up: arrangement, manning and key missions
- Investments
- Key learnings and examples of quantitative gains in terms of production

15:40 QUESTION AND ANSWER SESSION

A final opportunity for delegates to ask questions and make comments to the chair and afternoon speakers

15:50 CHAIR'S CLOSING REMARKS

Simon Rees, Member of the Offshore Engineering and Upstream Committee, Institution of Mechanical Engineers

16:00 END OF CONFERENCE

Find out more about our speakers at: www.imeche.org/events/C1419

- This programme is subject to change.
- The Institution is not responsible for the views or opinions expressed by individual speakers.

SPEAKERS AND CONTRIBUTORS

OONAGH WERNGREN KEYNOTE

OPERATIONS DIRECTOR, OIL & GAS UK

Oonagh Werngren is Oil & Gas UK's Operations Director with responsibility for addressing operational issues in UK petroleum exploration, development, production and infrastructure. With over 30 years of experience in the field of exploration and production, Oonagh has accumulated a wealth of cross-industry experience leading subsurface, drilling, technology, development and supply chain organisations in Europe and Alaska, USA. Prior to joining Oil & Gas UK, Oonagh was Business Manager at GDF SUEZ E&P where she was responsible for bringing a number of major UK and international developments to project sanction. Oonagh previously spent nine years at BP, in a variety of roles including Head of Technology for BP's North Sea operations.

ARCHIE KENNEDY KEYNOTE

MANAGING DIRECTOR UK AND VICE PRESIDENT EUROPE, NEXEN

Archie Kennedy was appointed Managing Director for Nexen's UK region in 2012. He is responsible for overseeing all of the company's UK operations, ensuring efficient and reliable production, moving forward Nexen's growth strategy for the region and promoting safety, integrity and environmental responsibility throughout Nexen's UK facilities. Archie joined Nexen after more than 30 years of extensive upstream oil and gas experience in the UK, Canada and USA. He has held various positions to date, including acting as Director of Garra Point, a management consulting firm that specialised in assisting upstream energy companies through mergers and acquisitions. Archie was formally Co-Chairman of Oil & Gas UK and still retains board membership. He is a Fellow of the Institution of Mechanical Engineers and holds an MBA.

SIMON REES CHAIR

MEMBER OF THE OFFSHORE ENGINEERING AND UPSTREAM COMMITTEE, INSTITUTION OF MECHANICAL ENGINEERING

Simon Rees is a senior practitioner in offshore engineering and a Principal Consultant of MMI Engineering, based in their Bristol and Aberdeen offices. He graduated with a BEng in Mechanical Engineering from the University of Leeds and went on to complete a joint Mechanical Engineering/Applied Maths PhD in 1994. He specialises in applying mathematical techniques to oil and gas operational problems, especially those involving continuum mechanics. He is a frequent contributor to industry publications on a diverse range of topics ranging from naval architecture to flow assurance, is a Fellow of the Institution of Mechanical Engineering, a Member of RINA and a member of the IMechE Offshore & Upstream Engineering Committee.

ROBERT PATERSON SESSION CHAIR

SAFETY AND EMPLOYMENT ISSUES DIRECTOR, OIL & GAS UK'S HEALTH, Robert Paterson joined in 2007 from the Health & Safety Executives (HSE) Offshore Division where he was Operations Manager with responsibility for the strategy and business support teams and a number of front line inspection teams. Robert had over ten years HSE experience before moving into the new Offshore Division in 1991 where he spent several years leading an inspection team. Throughout his time in HSE, Robert was involved in the development of the post-Piper offshore regulatory framework for health and safety, operational strategy development and direction and in providing legal and enforcement advice and guidance to inspectors.

JOHN COWIE

AREA MANAGER, NORTHERN NORTH SEA, ENQUEST

John Cowie has a BSc in Petroleum Geology and an MEng in Petroleum Engineering. John started his career as a reservoir engineer at Marathon Oil and progressed through a range of subsurface, operations and commercial management roles. Prior to joining EnQuest PLC in 2010 he was technical director at First Oil Limited with responsibility for all technical and commercial matters. John is Area Manager for Northern North Sea at EnQuest, and is responsible for all operational aspects of the business within this area.

ANDREW DUNCAN

PRINCIPAL INSPECTOR: KP4, MATERIALS & CORROSION ENGINEERING, ENERGY DIVISION, HSE

Andrew Duncan is a Chartered Engineer with 30 years experience of the oil and gas production, oil refining, and petrochemical industries. Andy currently manages the Ageing and Life Extension Programme within HSE and has recently been working on the KP4 directive interim report. Andrew has had a number of roles during his career including Senior Corrosion Engineer BP and Senior Corrosion Engineer CAPCIS. Andrew has a BSc in Metallurgy and Materials Science.

GERHARD ERDSAL

PRINCIPAL ENGINEER STRUCTURAL INTEGRITY AND R&D MANAGER, PSA NORWAY

Gerhard Erdsal holds a position as the Principal Engineer Structural Integrity and R&D Manager at the Petroleum Safety Authority Norway (PSA) and is a professor in Structural Safety at the University in Stavanger. He graduated with an MSc in Structural Engineering from the Norwegian Technological University in Trondheim in 1991, and as a Dr Eng in Structural Safety at the University in Stavanger in 2005. He has some 10 years experience from practical structural engineering work from the engineering company Multiconsult in Oslo, Norway. Since 2004 he has been employed by the PSA Norway as Principal Engineer of Structures and Marine Technology, Project Manager for key programmes on Ageing and Life extension (2005-2010) and from 2012 as R&D Manager.

CRIS FELLS

MECHANICAL ENGINEER, GLOBAL CONCEPT DEVELOPMENT, BP

Cris Fells is a Mechanical Engineer in BP Exploration working on facilities design within the Global Concept Developments team. The team formulates the "Appraise" and "Select" stages major projects prior to FEED and detailed engineering. During 15 years with BP and 10 years as an Energy Systems consultant he has a history of applying novel statistical techniques to forecasting production delivery including production efficiency assessments. Cris is the primary BP representative on the OREDA (Offshore Reliability DAtabase) and UK representative on ISO TC67 PG1 and BSI PSE/17 WG 4 "Reliability Engineering and Technology" committees.

STEVE GARDYNE

HEAD OF PRODUCTION ENGINEERING AND OPERATIONS SERVICES, TALISMAN-SINOPEC

Steve Gardyne is Head of Production Engineering and Operations Services at Talisman-Sinopec. Within this role Steve is responsible for production forecasting and production performance management, production optimisation and hydrocarbon allocation and metering. Prior to his current role Steve was Operations Manager for Talisman's Buchan installation and has been an employee of Talisman since 2004. Having worked at both Wood Group PSN and BP Steve has a number of years experience in the offshore industry. Steve has an MSc in Management from Robert Gordon University which he completed in 2003.

STUART HAWKSWORTH

HEAD OF STRATEGIC CONSULTANCY MAJOR HAZARDS UNIT, HSL

Stuart Hawksworth joined HSL over 20 years ago as a PhD physicist working in the area of gas, spray and dust explosions. He has had a prominent role in a number of industrial explosions investigations, including leading HSL's investigation into the fatal ICL Plastics incident in 2004. In 2002, he took over as Department Head for the Explosion Control Section and subsequently Head of HSL's Major Hazards Unit in 2010. The Unit has around 60 scientists and engineers working across Fire Engineering, Process Safety, Consequence Modelling, Hazardous Substances and Explosives. His current role is Head of Strategic Consultancy within the Major Hazards Unit, where he is responsible for ensuring that the activity of the Unit is aligned with industry's key issues.

ADAM HULL

HEAD OF PRODUCTION, MAERSK OIL

Adam Hull is currently the Head of Production at Maersk Oil and has been since 2013. Prior to joining Maersk, Adam has had roles at Wood Group PSN, Bureau Veritas, AKO and KBR. Adam's previous roles have included Operations Director, Operations Manager and Operations Superintendent. Adam is a trained Mechanical Engineer and has experience in both a supporting engineering role and an engineering training position. Adam graduated with an HNC Mechanical Engineering from the University of Bolton in 1996 and then obtained an MSc in Asset Management from Robert Gordon University in 2002.

ENRIQUE SANDOVAL

PROGRAMMES MANAGER, BP

Enrique Sandoval is currently responsible for the appraisal, business case definition, and overall programme management of a series of projects which includes five fixed platforms in the UK sector of North Sea BP operations. Between 2010-2011 Enrique was responsible for HSE and engineering teams for BP Brazil. During this time Enrique secured the license to operate for all operations associated with BP Brazil. Enrique has a Management degree from MIT, an MSc in Civil Engineering and Environmental Engineering from the University of Liverpool and a BSc in Civil Engineering from the Universidad de Los Andes.

A special thank you to the IMECHE Offshore Engineering and Upstream Committee, for their contribution to the development of this programme.

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Look at an old problem that has not been discussed in recent years and discover potential solutions to the issue, including the use of new materials, and borrow some good ideas from other industries where weight is critical.

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3 December 2014
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AGEING ONSHORE STRUCTURES: MINIMISING HAZARDS THROUGH BETTER DETECTION TECHNIQUES

To get the best out of structures that are highly susceptible to deterioration, a greater emphasis must be placed on detection. This event will provide case studies showcasing the various different types of detection techniques that ultimately are able to reduce operating costs, reduce hazards and ensure compliance with latest guidance.

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9 December 2014
Aberdeen

PIPING AND PIPELINE RISK BASED INSPECTION

The UK oil and gas industry is facing its greatest challenge yet as the demand for energy across the UK continues to grow. A consequence of this is the pressing need for operators to ensure greater asset integrity both on and offshore. With this pressure comes the need to instil effective risk assessment and mitigation measures so to lower the chance of asset failure to ensure a reduction, or eradication, of unscheduled downtime through ensuring the safety, reliability and longevity of all parts of the asset.

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