

INDUSTRY & TECHNOLOGY POLICY BOARD

Petroleum and Drilling Engineering (P&DE) Division Annual Report for 2011

1. Board membership

Steve Bedford (Chair), Steve Jewell, Craig Durham, Margaret Copland, Prof. Babs Oyenehin, Martin Cox and Ian Merchant (with effect 1st November 2011). Stuart Preston IOM3 Co-ordinator.

2. Board meetings

22nd February, attendees: Steve Bedford, Margaret Copland, Martin Cox, Prof. Babs Oyenehin and Craig Durham.

4th July, attendees: Steve Bedford, Margaret Copland, Martin Cox, Craig Durham and David Arthur.

1st November, attendees: Steve Bedford, Margaret Copland, Steve Jewell, Ian Merchant, and Craig Durham, Martin Cox by teleconference.

Minutes of Board meetings are posted on the IOM3 website.

3. Opportunities for growth of Division Community or constraints

When the P&DE Board was established in 2007 the Division had 436 members. In line with IOM3 the P&DE Board set a target to increase Division membership by 20% by 2011. This target has been significantly exceeded with membership exceeding 1000 in August 2011; this milestone was recognised at Offshore Europe 2011 when Bernie Rickinson awarded a certificate to the 1000th member.

In 2010 the Board set a new target, and a five year plan, to increase membership to more than 2000 by 2015, reference Appendix B for the current version of the 5 year plan. The Board believes that the key short term levers to achieving membership growth are:-

- Continued delivery of successful events and offerings.
- Canvassing and responding to member needs. A member survey was conducted in 2009 and a follow up survey was undertaken in 2011, the results from the member surveys are used to develop actions.
- Raising the profile of the Division and improving communications, our members tell us that they would like more electronic communications.
- Raising the visibility of the opportunity for Oil and Gas professionals to obtain CEng through the Institute and supporting attainment of this qualification. Note that both the 2009 and 2011 member surveys showed that obtaining and retaining CEng was the primary reason for people to belong to the Institute. The widely publicised blowouts on the Macondo and Montara wells has significantly heightened the issue of personnel competence in Petroleum and Drilling Engineering. In 2011 US Authorities mandated the requirement for a Registered Professional Engineer to signoff on certain aspects of a well programme.

- Engaging students and employees through the Institute accreditation of relevant academic and Industrial development programmes.
- A programme of technical seminars at key Universities.
- Increased technical events in major oil and gas centres outwith Scotland, for example a master class on non conventional gas is planned for 2012 in London.
- Visible Institute presence at Offshore Europe to connect, and engage with, the 40,000+ attendees.

In the medium term the Board believes that there are growth opportunities through the establishment of local societies in other global oilfield centres, increased links with other bodies who cannot offer professional qualifications and engaging the Technician community. The Board short term (2012) and 5 year plans are focused on continued membership growth.

The two key constraints to growth at this time are viewed as the number of Board members and limited Institute support. The Board requires more members to sustain and grow activities. The Board obtained one new member in 2011. Through the 2011 member survey 67 members expressed an interest in getting involved with Division activities, these members will be contacted to increase the Board membership and diversity. The 2010 Board Annual report noted the requirement for more Institute support for accreditation and the Board has been lobbying for this throughout 2011. At the year end the Institute was not taking on new accreditation work while working through a backlog, this is a major disappointment and impediment to the Division growth strategy. Going into 2012 the Division will be looking for Institute support for accreditation and to develop international local societies. In addition to these two key constraints the following are also viewed as constraints:-

- No legal requirement for the professional qualifications and continuing professional development offered by the Institute.
- Limited career enhancement through gaining the professional qualifications offered by the Institute and participation in the continuing professional development activities.
- Engineers in the Oil and Gas Industry are very busy and find it difficult to make the time to participate in the Institute.
- There are multiple Institutes working in the Petroleum and Drilling Engineering sector, decision makers tend to support their own "heritage" professional body.
- The American Society of Petroleum Engineers (SPE) globally dominates the Petroleum and Drilling Engineering profession. The SPE has linked up with the Energy Institute and is offering an increased level of service to Petroleum and Drilling Engineers, including: a route to professional UK registration as a Chartered Petroleum Engineer and model codes of safe practice/guidelines for Petroleum and Drilling Engineering activities i.e. Industry Best Practices.

The P&DE Board continue to recommend that the Institute:-

- Lobby the European Union, with other professional bodies, to have legislation passed to recognise and require professional qualifications to practice as an Engineer within the oil and gas Industry in Europe. It should be noted that the European Commission has proposed to the European Parliament and Council regulation on safety of the offshore oil and gas Industry.
- Update the home page of the IOM3 website to make it more intuitive and easier to access the Division micro sites and the application material for professional qualifications. Note that 96% of the members responding to the Division 2011 survey had visited the IOM3 website but only 46% had visited the Division microsite.

4 Technical programme

P&DE Division has been active through 2011 delivering technical presentations, student seminars and training courses as detailed in Appendix A. At each event there was a recruitment stand and video conferencing was used to reach the geographically dispersed membership. The P&DE membership survey clearly indicated that members view networking opportunities at professional events as a key reason for belonging to the Institute so the Division is looking to sustain popular technical events and add new events in 2012 as detailed in Appendix A. Highlights and learning's from 2011 were:-

- The Institute provided first class support for Offshore Europe 2011 (OE2011) and had a very visible presence. Attendance was above expectations at 48,575 and multiple contacts were made, the key now is for the Institute to follow up on these contacts. The Board undertook a post conference review and has captured the learnings from OE 2011 to further improve the Institute impact and gain from Offshore Europe 2013, planning for this event will start in the summer of 2012.
- Engagement with other Institutes for joint technical events has proved to be effective for the Institutes involved as many different Institutes operate in the Aberdeen area and programmes tend to clash.
- Continued over subscription for the downhole metallurgy course and interest from Companies for the Course for their Engineers.
- Student seminars have proved to be a more effective means of engaging students than attendance at induction events and there is growing demand for seminars outwith Aberdeen

5 Foresight / Innovation and Growth

Global energy demand has increased by 49% in the last twenty years driven by increasing population and economic development. Demand is forecast to increase by a further 39% over the next twenty years. Oil and Gas continue to supply around half of the energy demand and have enjoyed steadily increasing demand through 2011, despite the weakness of the global economy. Oil prices have remained above \$100 a barrel as supply has been effected by conflict in Libya, continued restrictions in the Gulf of Mexico following the Macondo well blowout and recovery from conflict in Tunisia and Iraq. Gas demand has increased following the Fukushima nuclear incident. Increased demand is driving producers to develop more technically demanding resources for example: shale gas, coal bed methane, deepwater plays, arctic resources, more complex reservoirs and high pressure/temperature reservoirs. The UK is fortunate in having experience in all these areas. Although UK domestic oil and gas production has continued to decline the Industry view is that a further 25 billion barrels of oil equivalent can be extracted from the UKCS, on top of the 40 billion barrels produced to date. The UK is a major exporter of oilfield services, personnel and equipment, for example in the growing subsea market the UK is the world leader earning £5.9 billion out of a total global market of £18.9 billion Over the next twenty five years \$33 trillion will be invested in the oil and gas Industry. The key message is that the oil and gas sector is going to see significant continued growth in technically demanding environments providing major opportunities for this Institute.

6 Professional membership developments

Membership developments are detailed in section 3 and 4 of this report. The Division has continued to hold quarterly professional review panels for new CEng applicants. As detailed previously the Board view accreditation as a key lever to further growth. In 2010 the Board set a strategy of gaining accreditation of early development programmes with oil majors Shell and BP, then leveraging off these to encourage more Companies to get their programmes accredited. The Shell Expro materials and well engineering programmes achieved accreditation and the BP global well engineering programme was on track for accreditation at the year end. Many Companies at OE2011 expressed interest in accreditation and their details were recorded by David Arthur, unfortunately the Institute is currently dealing with a backlog of accreditation work and is not progressing any new accreditations. The Board had identified University courses and Technician programmes interested in accreditation but the moratorium on new accreditations has shut down this key area of membership development.

The Board have received a number of requests to undertake Professional Interviews for members working in the United Arab Emirates (UAE) and members in that area have expressed interest in a technical programme. The Board believe that there could be an opportunity to develop a local society in the UAE, possibly linked to the Heriot Watt University Dubai campus. The Board will follow up on this in 2012 but will require support from the Institute.

7 National and international linkages with other Societies /Institutes

The P&DE Division has active linkages with the Energy Institute, Institute of Mechanical Engineers, Edinburgh Geological Society and the Society of Petroleum Engineers; reference joint events detailed in Appendix A. The intent of the P&DE Division Board is to continue to work with these bodies to deliver an enhanced offering.

The Aberdeen chapter of the Institute of Corrosion (ICorr) has an active technical programme and community. Members also belong to IOM3 to gain CEng and attend P&DE meetings. The new P&DE Board member is also a member of ICorr and has taken on the task of establishing a deeper relationship between the two local societies.

8 Government interfaces

P&DE Division strategy is for government interface to be via the Institute with the P&DE and IMMA Chairs as nominated subject matter experts.

9 Publications

Articles on the Division and its areas of interest have been regularly published in Materials World and MIS Branch News. The Division has also contributed to book reviews and Craig Durham is a columnist for Materials World. The Division micro site has been regularly refreshed and is consistently among the most visited Divisional sites.

Increasing the visibility of the Division and more communication with members is a priority for the Division in 2012. The intent is to issue Division brochure (in the standard IOM3 format), provide press releases and initiate an eNews publication. Direct links to the microsite will be included with electronic communications to increase the profile of the site.

10 Awards/prize

The Division has no specific awards of its own but actively works with the MIS in this regard. The Division worked with the Robert Gordon University and Aberdeen based oil companies to encourage high quality Petroleum and Drilling Engineering papers for the Young Person's Lecture Competition. Enhanced prizes were awarded for first, second and third with the winner going on to the UK final. The funds realised from the metallurgy courses organised by the Division have been used to fund a scholarship through the Arkwright Trust to encourage and support young people at school to pursue careers in Engineering, specifically Mineral Extraction. The first scholar has gone on to University to read Engineering and a second scholar has been taken on. The Division was able provide mentoring and Industrial experience for the Scholars. The Division works with the MIS to award travelling scholarships to suitable students to enhance their studies.

11 Other matters

The member surveys have shown that virtually all the Division members work in the Oil and Gas Industry. However many Division members do not work in Petroleum and Drilling Engineering and people do not relate to the Division title. Accordingly the Board is going to review a change to the Division title to say "Oil and Gas" to be more inclusive and attractive. Guidance and support from the Institute on how to effect the change of a Division name will be required.

The Board is currently undertaking analysis of the demographics, dispersion and grade of members to deepen understanding of the membership.

The Board has agreed and documented an action plan for 2012 based on the member survey feedback and focussed on: professional development, communication and growth. This action plan can be found in the minutes of the November Board meeting and is aligned with the Division 5 year plan.

2011 was the fourth full year of operations for the re-established P&DE Division under the new Board. It is the view of the Board that the Division has continued to make significant progress and has a robust strategy and action plan to build on the momentum that has been created; thereby ensuring that the Division will make a significant and real contribution to the Institute.

S. Bedford

Eur Ing Steve Bedford BEng CEng MIMMM
Chair Petroleum and Drilling Engineering Division
22nd December 2011

Appendix A – Technical Programme

Date	Status (Held /Progressing /Planned)	Title	Location	Organising Division(s) /Committee(s) /Collaborators	100% Target No's	Actual No's	Financial Underwriter (IOM3/Local /Other)	Financial Out-turn, Comments etc
2011-01	Held	Buzzard Field Development 4 years on	Aberdeen, Edinburgh, Glasgow, London	P&DE with MIS and EI	50	145	MIS	Standing room only! This shows the potential from combined meetings on relevant topics.
2011-03	Held	Introduction to downhole metallurgy	Aberdeen	P&DE	15	38	MIS	Two courses run for Chevron and accredited.
2011-02	Held	Young Person's lecture competition	Aberdeen, Edinburgh & Glasgow.	P&DE with MIS	20	12	MIS	4 entrants.
2011-02	Held	Completion Engineering Seminar	The Robert Gordon University	P&DE	30	38	RGU	Very well received. Request to re-run in 2012. 31 students joined IOM3.
2011-02	Held	Subsea Engineering Seminar	The Robert Gordon University	P&DE	30	38	RGU	Very well received. Request to re-run in 2012.
2011-02	Held	Gas Well Deliquification Seminar	The Robert Gordon University	P&DE	30	38	RGU	Very well received. Request to re-run in 2012.
2011-03	Held	Introduction to downhole metallurgy	Aberdeen	P&DE	15	18	MIS	CPD 2 day course with IOM3 accreditation. 10 on the wait list.
2011-03	Held	Underground coal gasification	Aberdeen, Edinburgh & Glasgow.	P&DE with MIS	50	32	MIS	
2011-03	Held	Directional drilling presentation	Sheffield	MIMinE	50	20	MIMinE	Follow up to safety seminar.
2011-09	Held	Offshore Europe 2011	Aberdeen	SPE with P&DE and IOM3	40000	48575	IOM3	Visible IOM3 presence. IOM3 logo on all conference material, IOM3 seminar and multiple contacts "walking the floor". 80% increase in microsite hits during OE2011.
2011-09	Held	Techfest RW Thomson Memorial lecture	Aberdeen	P&DE with MIS, IOM3	100	60	MIS	First class lecture.
2011-10	Held	Mining Approach to Risk Management	Milan	P&DE with Drilling Engineering Association (Europe)	30	40	MIMinE	This event was not in the initial plan for 2011.
2011-11	Held	Sustainability: Energy, Economics & Evolution Presentation	Aberdeen, Edinburgh, Glasgow,	P&DE with MIS	50	35	MIS	
2011-11	Held	North Sea Oil and Gas presentation	Edinburgh	P&DE with MIS and EGS	100	120	MIS	Scottish Georesource conference, event was over subscribed.

2011-12	Held	Extended Reach Drilling presentation	Aberdeen, Edinburgh, Glasgow.	P&DE with MIS and IMechE	50	67	MIS	
2012-02	Planned	Young Person's lecture competition	Edinburgh.	P&DE with MIS	20		MIS	
2012-02	Planned	Completion Engineering Seminar	The Robert Gordon University	P&DE	30		RGU	
2012-02	Planned	Subsea Engineering Seminar	The Robert Gordon University	P&DE	30		RGU	
2012-02	Planned	Gas Well Deliquification Seminar	The Robert Gordon University	P&DE	30		RGU	
2012-03	Planned	Introduction to downhole metallurgy	Aberdeen	P&DE	15		MIS	CPD 2 day course to obtain IOM3 accreditation.
2012-02	Planned	Sakhalin development presentation	Aberdeen, Edinburgh & Glasgow.	P&DE with MIS	30		MIS	
2012-06	Planned	Masterclass in Non Conventional Gas.	London	P&DE with MinSouth	100		MIS	Date to be confirmed, Simmons and Simmons to host.
2011-09	Planned	Industrial Visit	Aberdeen	P&DE with MIS	20		MIS	
2011-11	Planned	Technical presentation	Aberdeen, Edinburgh, Glasgow,	P&DE with MIS	30		MIS	
2011-12	Planned	Technical presentation	Aberdeen, Edinburgh, Glasgow.	P&DE with MIS	30		MIS	

Notes:-

Video conferencing used to facilitate multiple sites joining in the Technical programme where possible.

All events include a recruitment session.

The Board will facilitate further technical activities in 2012 if opportunities arise.

MIS: The Mining Institute of Scotland
 EI: Energy Institute
 IMechE: Institute of Mechanical Engineers
 RGU: The Robert Gordon University
 EGS: Edinburgh Geological Society.

Appendix B P&DE Division 5 Year Plan



Petroleum and Drilling Engineering Division Five Year Plan @ December 2011

ESTABLISHED	MAINTAIN GROWTH			
2011	2012	2013	2014	2015

Metric	Current	Target
Membership	1000	2000
Web Site Monthly Hits	200	500
Accredited Development Programmes	2	15
Accredited Academic Programmes	2	8

Vision: Increase membership and be a globally recognised Body for Oil and Gas Professionals



- Sustain successful events/offerings.
- Increase scope of Shell&BP accreditations.
- Obtain more IOM3 accreditation support.
- Initiate London masterclass programme.
- Establish way forward for technicians.
- Engage with ICorr.
- Increase the visibility of the Division – improve and increase communications.
- Prepare for OE2013.
- Increase and broaden the Board.

- Sustain successful events/offerings.
- Regularly communicate with members to identify their needs for the Board to address.
- Increase the profile of the Division.
- Accredite more development programmes.
- Accredite technician programmes.
- Increase the Geographic reach of the Technical programme.
- Academic course input outwith Aberdeen.
- Develop workgroups and sub groups.
- Establish working relationships with other bodies whose members can benefit from joining IOM3.

Acheivements ✓ Downhole metallurgy courses ✓ Professional Recognition Events ✓ Scholarships ✓ OE 2011
 ✓ Membership up from 436 in 2007 ✓ Website ✓ Techfest ✓ Articles ✓ Seminars ✓ Shell & BP Accreditations