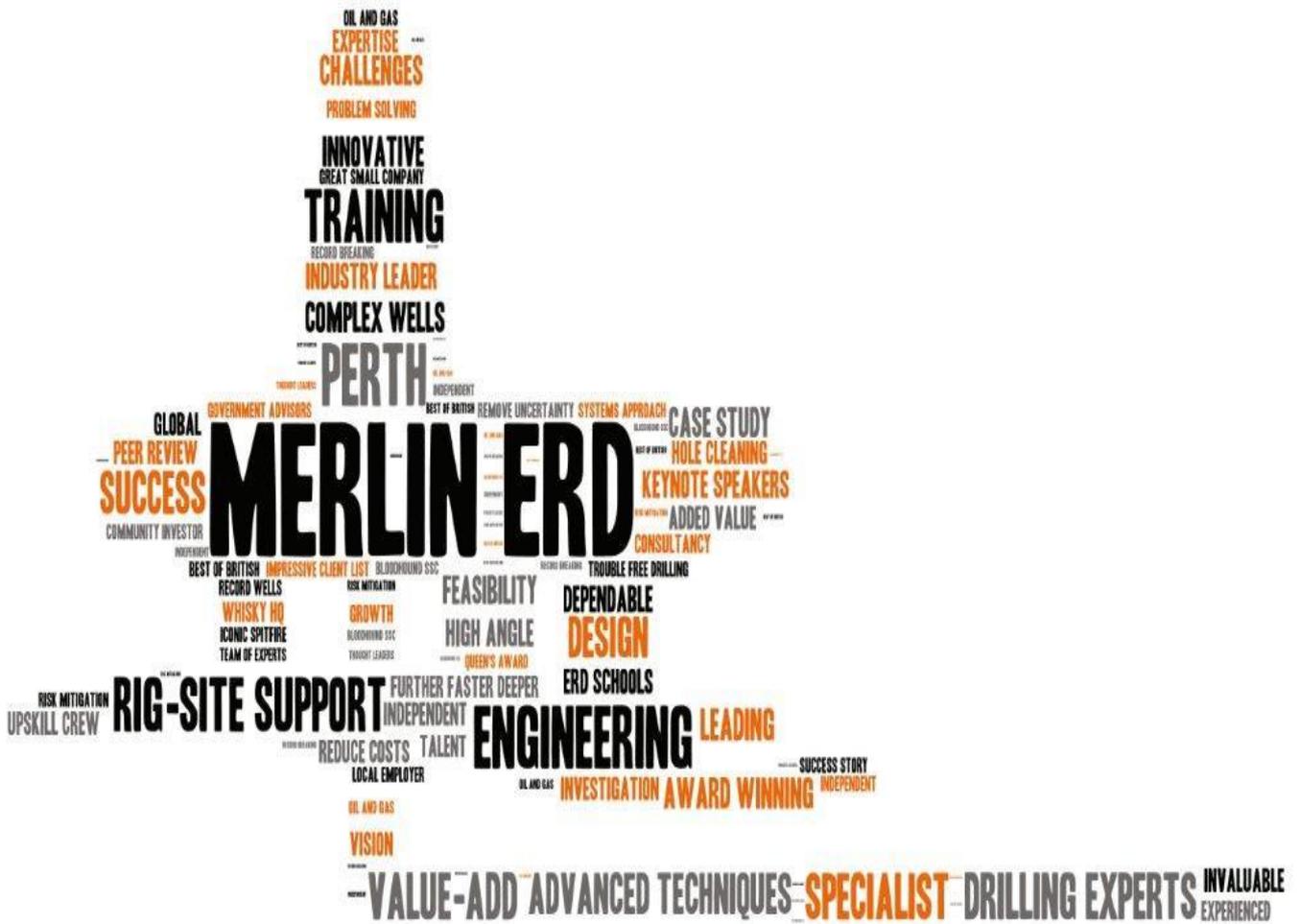




MERLIN ERD

Extended Reach Drilling Engineers



Press Pack

OVERVIEW

Did you know that the world's longest oil and gas wells are designed and then supported during drilling from Perth, Scotland? And that the same team can make "impossible" wells feasible and marginal projects economic?

Scotland and Britain are once again pushing the boundaries of engineering, this time in the realm of advanced drilling applications to lower the cost in accessing oil & gas reserves.

Merlin ERD Ltd is a world leader in the design and delivery of horizontal, extended reach and complex wells to the oil and gas industry. As targeted hydrocarbon accumulations become ever smaller and more difficult to exploit, these enabling technologies become ever more important in unlocking production opportunities, which are otherwise uneconomic.

Extended Reach Drilling (ERD) engineering is the pinnacle of drilling technology. Not only can it increase the drainage radius of existing assets (platform, well-sites etc), it can do so with reduced environmental impact, a very sensitive area for the oil and gas industry. Reserves at the periphery of existing developments can be developed without additional surface facilities, with associated cost savings and reduced "footprint". More recently, ERD technologies developed to drill further than we've ever drilled before have been applied to standard directional wells with reductions in risk, cost and time that have led to an ever increasing demand for this innovative technology from companies wishing to reduce costs. The ability to tie-in new reserves to mature assets can allow life extension and abandonment deferral, a subject popular in the North Sea and many other mature hydrocarbon basins.

Operating in 34 countries and over 90% of business came from repeat or client recommendation, this independent engineering consultancy is the go-to expert in horizontal and ERD well design. If you have a drilling problem, they can help you.

Merlin ERD's technical successes and accolades are bountiful. Its specialist engineers are in demand to contribute at technical conferences from Australasia to the Middle East, Europe and the Americas. The company was recently asked to assist in updating the IADC (International Association of Drilling Contractors) Manual, which is the drilling "bible" present on every rig around the world. It also invests significant resources in training industry personnel on the latest technologies and in 2014 received a government commission to report on Advanced Drilling Technology opportunities in the North Sea. This suggested that these technologies, combined with the Merlin Methodology, could release an additional 5 to 12 billion barrels of oil from currently overlooked complex nooks and crannies in the UK North Sea.

The company continues to receive recognition for its innovative approach and business success. Being awarded two prestigious Queen's Awards for Enterprise in 2014 and again in 2016 for International Trade, the 'Perthshire Business of the Year

2014' Award, the Society of Petroleum Engineers Offshore Achievement Award for 'Great Small Company 2015' and the HSBC Scottish Export Award for 'Small Exporter of the Year 2016'.

Merlin ERD has highly invested in the Perth community and local employment; the company supports development initiatives and for its first "home" transformed a city centre workshop into modern office facilities. In February 2013 it took over the 7 acre Cherrybank Gardens and former Bell's Whisky building to produce an iconic headquarters.

A passion for promoting British engineering accomplishments, creating a revolutionary work experience and supporting the next generation of engineers has led the company to sponsor the Bloodhound SSC (Super Sonic Car) project since 2011. This amazing project aims to break 1,000mph and in doing so, smash the FIA World Land Speed Record, whilst its main aim is to inspire the next generation about STEM subjects. Merlin ERD also maintains the Spitfire gate guardian at Edinburgh airport and provides an Aston Martin DB9 convertible pool car for staff use.

HISTORY

Merlin ERD was born in 2007 at the kitchen table of our passionate Scotsman, Iain Hutchison. Iain had a clear vision that the application of aerospace style risk management and engineering techniques could enhance advanced drilling capabilities. Through this, inaccessible reserves could be exploited, problems could be eradicated and personnel capabilities enhanced. In short, more oil, cheaper and sooner. The company strives to epitomise British engineering success and a 'best of breed' engineering ethos is reflected in its name – a reverential nod to the iconic Rolls-Royce Merlin engine, the exceptional power plant behind the legendary Supermarine Spitfire.

From the early days of operating from a laptop and seeking out free wifi in local cafes, Merlin ERD now employs 38 people and attracts the engineering experts behind some of the most challenging wells in the world. The company has taken talent growth even further by developing and delivering specialised training courses, further extending success in complex well engineering projects. Being told that a well is not possible or uneconomic is like a gauntlet being thrown down and the team's track record is such that you wouldn't bet against them.

GALLERY

Iain Hutchison, Managing Director & Founder, Merlin ERD Ltd.

Finalist and runner up in Entrepreneurial Scotland: Entrepreneur of the Year Awards, Emerging Entrepreneur of the year category 2015. Finalist in the EY Entrepreneur of the Year 2016 Scotland.



Merlin House, Merlin ERD Head Office, Necessity Brae, Perth, Scotland.



Iain Hutchison and Neil Armstrong pictured alongside company pool car Aston Martin DB9.



Kevin Gray of Merlin ERD taking the Queen's Award flag to the South Pole

Note: more photos available on request

PROFILES

Iain Hutchison – Managing/Engineering Director

A Chartered Mechanical Engineer and graduate of Heriot Watt University, Edinburgh, Iain has spent over 25 years working around the world on a variety of projects from world record ultra-long and deep water ERD (extended reach drilling) wells, to low cost land and jack-up projects.

As the Managing Director of Merlin ERD, Iain has built a team who make the difficult routine and the impossible simple. They relish drilling further, faster and making previously uneconomic hydrocarbon reserves profitable. Iain has passionately championed this cause for the UK North Sea with leaders in the political, financial and economic spheres as well as within the oil and gas industry.

Highly regarded for his business credentials as well as his extensive knowledge of the drilling industry, Iain is a member of Entrepreneurial Scotland, an Ambassador both for the Invest in Perth initiative, SCAA (Scotland's Charity Air Ambulance), as well as a committee member for the SAC (Scottish Aero Club).

Iain is married to Debbie, has three children and is an award winning aviator. His flying passion is indulged through his Spitfire aircraft, which he built whilst working in Australia. When family and work commitments allow, he enjoys few things more than flying over the beautiful Scottish landscape, which he describes as his "escape to relaxation!" "Entertaining at air shows doesn't have the same relaxation value, but is equally as rewarding" states Iain.



Iain pictured with the Spitfire Gate Guardian at Edinburgh Airport which Merlin ERD Ltd maintains. Interviews are available on request.

Neil Armstrong – Engineering Manager

Neil's primary focus is on extended reach and high angle drilling practices across the client portfolio at Merlin ERD. Neil also delivers specialised ERD training courses and is passionate about educating engineers and rig crews in the complexities of extended reach drilling techniques. Neil is a patient mentor who supervises and coaches rig site and office personnel on successful ERD practices.

Neil's many achievements include designing and leading the execution of the longest well drilled in North America and the successful completion of shallow TVD (true vertical depth) high angle ERD wells in Malaysia. This involved the development of a casing design to mitigate negative weight for non-floated production casing strings; modification of well designs to reduce ECD (equivalent circulating density) and minimise the risk of losses while drilling and cementing, and additionally the design and execution of high angle, long interval frac-pack completions.

After graduating from Sandhurst and a successful career as an officer in the British Army, in 2002 Neil started work as a drilling engineer which led him to work on industry leading projects in the USA, UK and Malaysia. He is a Chartered Engineer registered with the Institute of Mechanical Engineering and has a B.Eng. Mechanical Engineering degree.

Technical editorial and comment opportunities available on request.

Michael Egorenkov – Senior Drilling Engineer

Michael graduated from Tomsk University, Russia with a Master's degree in gas and oil well drilling followed by 8 years' exceptional experience in planning and delivering ERD wells including 3 world record wells in Sakhalin, Russia.

Michael left Russia in 2011 to join Merlin ERD. Significant career highlights at the company since then include a drilling practices review and engineering study for one of the biggest operators in the Caspian region, which resulted in a multi-year contract with a major operator to supply ERD training to hundreds of drill crew, service personnel and engineering staff, as well as on-site rig support and detailed engineering.

Currently based in Aberdeen, Michael works with the Merlin ERD training programme team, developing insightful and technically advanced training material to be used in training courses globally. Michael is a rising star and is a valuable member of a forward thinking and dynamic team.

Technical editorial and comment opportunities are available on request.

COMPANY SERVICES

Merlin ERD promotes an integrated approach to well engineering through application of the Merlin Methodology. Services are grouped into 3 main areas: Engineering, Training and Rig-site support.

These services can be applied anywhere from the concept and inception of the well, right the way through to problem review to cater for any issues encountered. While the company can add most value per hour invested at project concept and prefers to get in early, it also carries out a lot of problem reviews and has a very clear opinion on what cripples demanding high angle wells.

Technical case studies outlining the value added through Merlin's services can be viewed at: www.merlinerd.com/Merlin_ERD_Case_Study01.pdf

Engineering

Merlin ERD engineering services include feasibility studies, detailed design and engineering, problem investigation, peer review and challenge, rig-sizing and equipment specification, technical manual supply, update and review.

Training

Extended reach drilling is a highly specialised discipline, where crew understanding and capability remains a key success factor. Merlin ERD uses a combination of staff and industry experts to deliver both public training courses and dedicated client schools worldwide. Case studies, props and visualisation tools are used to educate drilling personnel on risks, mitigations and current best practices.

Rig-site support

Onsite rig support is further key part of drilling trouble-free wells. Merlin's rig-based technical staff ensure that systems are set up to capture and catalogue dependable and accurate data. This is invaluable in reducing uncertainty and risk – for example wellbore condition monitoring provides detailed analysis of hole condition and early warning of approaching hole problems.

When onsite, Merlin ERD personnel repeatedly develop safeguards to identify and avoid problems before they occur. These highly skilled staff update engineering plots and roadmaps with the latest information to reduce drilling and completion times, which in turn reduce cost and deliver improved production rates sooner from wells with lower environmental impact.

For more information about any aspect of Merlin ERD, please call 01738 627922, visit www.MerlinERD.com, email: miles.long@MerlinERD.com or write to the following address: Merlin ERD Ltd, Merlin House, Necessity Brae, PH2 0PF, Scotland, UK.