


Petrofacts



February 2014

Petrofac 

Inside this issue

| | |
|-----------------|--|
| Log | 4 Our record of the company's news, activities, new contracts and agreements around the globe |
| Features | 8 Making inroads in the Caspian After ten years of work, there is more ahead in this key geographic area |
| | 16 Staying the strategic course Group Chief Executive Ayman Asfari explains his plans for our future |
| | 20 Resource in depth A unique insight into our revolutionary new offshore vessel |
| | 22 Mexican waves How Petrofac is working with local people around its projects in Mexico |
| | 30 The big picture: Ruwais The stunning futuristic control room of Gasco's 4th natural gas liquids train |
| | 32 The island warriors Meet the team who are constructing their project on artificial islands |
| | 36 Where we work Petrofac trainers work alongside astronauts in NASA's indoor pool |
| | 38 Back up and running A complex refurbishment task, completed safely and on schedule |
| | 40 Double vision How two graduates, ten years apart, share similar Petrofac career goals |
| | 42 I always carry... A single item, carried to work each day, reveals a lot about a person |
| People | 44 Appointments, achievements, appearances and some of the personal aspects of our lives as Petrofac people |



Feature article: Mexican waves
See page 22
Farmers, fishermen and other members of the community are benefiting from our work in Mexico
Photograph by Marc Morrison

Contributors



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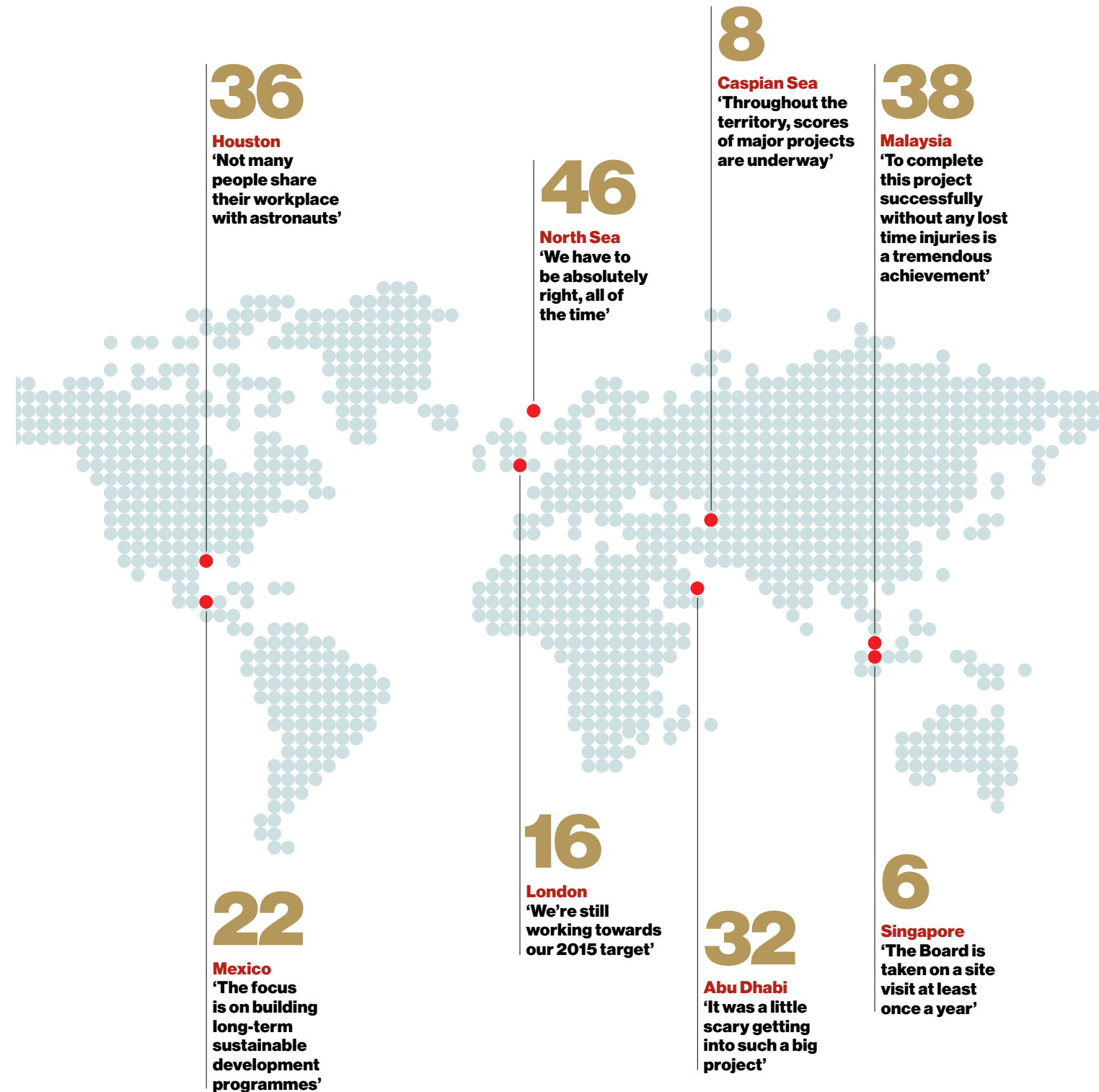


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THE PETROFAC ACADEMY



International graduates asking questions during a session at the Academy

Attracting, developing and retaining skilled staff are central to Petrofac's ambitions to reach its 2020 corporate vision, and the company has always had an unwavering commitment to cultivating homegrown talent – a mantra that comes from the very top.

In under ten years, Petrofac has increased the number of its trainees fivefold. In 2004, there were just 15 graduates who started on the in-house training programme; fast forward a decade, and the latest intake of 400 new recruits are benefiting from a sophisticated, purpose-built training centre – The Petrofac Academy, in Petrofac House, Sharjah, which opened its new doors

in September last year.

Former President of Petrofac, Maroun Semaan leaves behind a lasting legacy. His blueprint for the future paves the way for a sustainable supply of talent, thanks largely to the continued evolution of The Petrofac Academy,

During one of his last engagements as President, Maroun delivered a keynote speech to the most recent class. "This programme is an investment in the future of Petrofac, as the company wants to develop eager young engineers into effective, experienced engineers," he said.

Ray Richardson, Senior Vice President, Operations at Petrofac and head of the Academy,

is one of the mentors to the graduates, and plays a pivotal role in the process.

"There's not only been a physical change in terms of setting up the facilities themselves but also in the delivery of the training," says Ray. "We have invested a lot of time in developing the content and refining it to further reflect the way Petrofac operates."

Petrofac has long standing relationships with a number of universities, which assist in sourcing quality graduates and those networks continue to expand. But in another strategic move Petrofac has, to an extent, mirrored its scouting network in places where the Group is commercially active.

"The diversity of our graduates is increasing every year," explains Ray. "But the latest intake includes people

from Russia, China, Jordan, Kazakhstan, Lebanon and many other countries. That geographical reach is by design; they are predominantly from our operating areas. That helps to create future synergies in sustaining in-country operations."

Michael Schulz, Senior Vice President Human Resources at Petrofac, agrees. "Execution in our business is 90% of our success and although we have to bid to win the right jobs, executing them is crucial to long-term growth. If our people are in close proximity and fully engaged with projects, we believe that is a strategic differentiator in delivering on those contracts."

Michael has been heavily involved in the planning process of the Academy. He recognises the long-term economic value of the internal learning programme, as the energy industry continues to battle against a skills shortage.

"The latest wave of investment comes against the industry backdrop of a deficit of skills in general and a diminishing pool of talent," says Michael. "In response, Petrofac initially adopted an aggressive recruitment policy. However, by continuing that, you are only going to begin to fish in a much smaller pond over time and increase the scarcity factor of individuals. The Academy is a pivotal part of the plan for us to move from a company that relies on external talent to one that produces its own."



Michael Schulz (above) and Ray Richardson (left)

MEXICO IN NUMBERS

In August 2011, Petrofac won two integrated services contracts to develop the Magallanes and Santuario blocks in south-central Mexico, and has since been awarded a further two production enhancement contracts – for Pánuco and Arenque.

The Magallanes and Santuario blocks each comprise two mature onshore fields. Since Petrofac started the re-development programme, more than 44 new production wells have been drilled and brought on stream, alongside many significant maintenance and integrity programmes to conserve and enhance the safety, efficiency and environmental security of the assets.

Production at both fields has significantly increased.

More than 300 new employees have been recruited, and approximately 90% of current staff are Mexican.

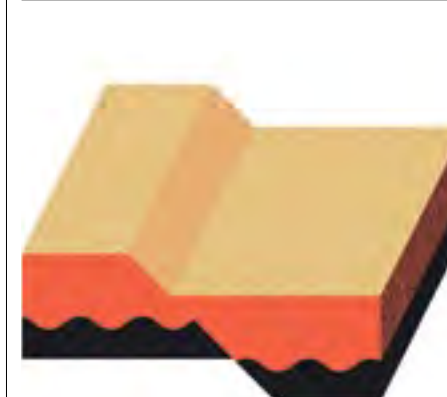
Petrofac has now established a service company with Grupo Alfa (Petroalfa) which brings wells and other services in-house to drive cost efficiencies.

ILLUSTRATION BY ALEX WALKER



50%

the total amount by which production has increased at Magallanes and Santuario



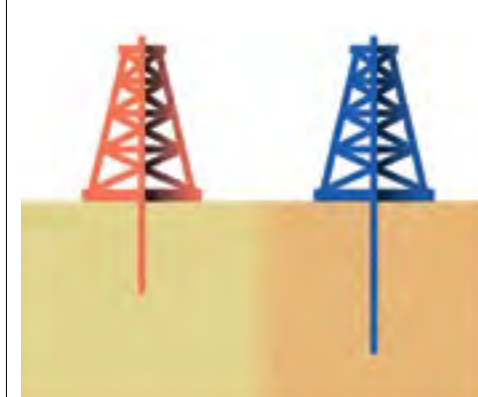
25,000

Production across Petrofac's four contractual areas is 25,000 barrels of oil a day



\$4 MILLION

cost per horizontal well, now delivering 1,000 barrels a day



55%

efficiency improvement in drilling compared to prior performance

ROUGH SUPPLIES GAS ON DEMAND

It's midwinter in the UK and the British media is in the midst of its annual obsession with energy supplies. Is there enough to make it through the winter? What if there are prolonged cold snaps? As a consequence, politicians continue to debate whether the UK needs more gas storage facilities.

The National Grid insists that there are enough. Apparently, the UK's gas storage sites, of which there are currently eight around the country, have the capacity to deliver more than twice the nation's average

winter demand for gas.

The largest of these is the Rough gas storage reservoir, situated 29km off the north east coast of England. It consists of two assets, 47/8 Alpha and 47/3 Bravo. And Petrofac has been providing the people to maintain them since 2007.

Rough is a partially depleted gas field into which gas is injected to help manage peak demands for energy, such as during a prolonged cold snap. The gas can be withdrawn, on demand, 24 hours a day, 365 days a year.

Graham Hughes is the operations manager for the contract. "It's an interesting diversion from our work on oil and gas producing assets.

"We've just agreed a two-year contract extension, worth £1.76 million per year, with Centrica Storage Limited, which owns and operates the facility. It's testament to the work we've been doing for the last six years.

"In actual fact the work we do on Rough is the same as what we'd do on a producing asset.

"It's great to be able to say that we're playing an active part in keeping the country warm."

BOARD CHANGE



Andy Inglis, head of Petrofac's Integrated Energy Services (IES), is leaving the company and stepping down from the Board to become Chairman and Chief Executive of Dallas-based oil explorer Kosmos Energy.

Petrofac CEO Ayman Asfari highlighted Andy's key role in leading the company's five-year plan. He said: "Andy has made a significant and lasting impact on Petrofac's success. The growth of the IES business, which has seen a three-fold increase in net profit in just three years, is testament to his achievements and he leaves with our gratitude and

Rob Jewkes (right) steps up as Andy Inglis (top) moves on



best wishes for the future."

Rob Jewkes, currently Managing Director of Developments for IES, has assumed the wider role of Chief Operating Officer for IES, reporting directly to Ayman, who will oversee the IES business.

Rob has been with Petrofac since 2004, and has 35 years of experience in the oil and gas sector.

Ayman added: "IES is now a business of scale with a clear strategy to deliver operational excellence, commercial innovation and bespoke offerings to both new and existing clients.

"I look forward to working with Rob and the team to take the business forward."

In his note to staff, Andy explained that his

decision to leave had been influenced by both personal and professional reasons.

"My new role allows me to relocate with my family back to the US," he said, "and gives me an exciting new career opportunity."



The Jurong Island training facility, visited by the Board

THE BOARD JOURNEY TO SINGAPORE & MALAYSIA

For many people, a company board meeting means a routine assembly around a large table. Not so for the trip that the Petrofac Board of Directors took in October last year. During a week in Singapore and Malaysia, they managed to take in a training facility on Jurong Island, a shipyard in Pasir Gudang, and a full schedule of board meetings, as well as getting to know clients, employees and suppliers.

This isn't the first time the Board has undertaken such a trip: as well as being encouraged to visit Petrofac sites

independently, the full Board is taken on a site visit like this once a year. In 2012, a similar trip was arranged for Algeria.

Chairman Norman Murray explains: "Being an effective director is not just about sitting down in board meetings. This group can be the ultimate decision-making body for a company, looking at strategic and governance issues. These trips are a way for our Board members to see the real picture, to meet people and get a better understanding of the Petrofac business. Ours is a people business, and that needs to come alive for the Board. The Board also recognises the wholehearted support that Ayman and his team give to these trips which are an enormous logistical undertaking in terms of management time and input."

SUCCESS WITH DEBUT PETROFAC BOND

Petrofac successfully placed its debut bond issue into the US capital market, raising US\$750 million in October.

The proceeds were used to repay debt outstanding under the Group's existing revolving credit facility, and so provide further financial flexibility to support growth and investment.

Group Head of Treasury Brendan Boucher said: "This represents an important step in the evolution of Petrofac's

capital structure and provides an additional source of financing over and above the Group's existing bank facilities.

"It's important that we maintain the level of financial flexibility required to underpin our investment. This means having access to multiple sources of finance in addition to our existing bank facilities.

"The US capital market is the deepest pool of global liquidity. The bond has established the

Group in this important market and will facilitate access to liquidity for years to come.

"Despite the challenging economic conditions, there was a high level of investor participation which allowed us to exceed our original target – testament to the strength of the Petrofac credit."

The five-year bond, which will mature in October 2018, offers a fixed annual interest rate of 3.40%, to be paid to

bond holders semi-annually. Whilst the bonds were initially sold to institutional investors, they are also listed on the Global Exchange Market of the Irish Stock Exchange. The bonds are tradeable securities, and as such are bound by the Petrofac Share Dealing Code.

Any Petrofac employee or his/her connecting parties considering trading in bonds must contact the Secretary to the Board before doing so.

NEWS ROUND UP

Co-operation agreed in Nigeria

December: Petrofac and Taleveras, the African independent oil and gas company, signed a five-year memorandum of understanding for co-operation with the Nigerian Petroleum Development Company (NPDC).

The memorandum, which is extendable, allows all parties to explore options including funding, technical support, training services, and asset development on a risk service contract, and production enhancement contract, to support NPDC's aims to further build indigenous capacity and technical capabilities.

The agreement has been reached as part of the ongoing promotion of the Nigerian Oil and Gas Industry Content Development legislation.

Extended subsea offer in Malaysia

November: Petrofac announced the launch of its newly extended KW Subsea business, which will enhance the company's offer in the deepwater offshore engineering services sector in the Asia-Pacific region.

Consistent with the Group's strategy of further penetration into the offshore oil and gas market, the expansion combines local offshore pipeline consultancy, Pegasus and international subsea engineering and consultancy business, KW Subsea.

The combination of the two niche businesses will facilitate further access to the deepwater subsea, umbilical, riser and flowline (SURF) and pipeline sector.

Craig Muir, Managing Director for Petrofac's Engineering & Consulting Services (ECS) business said:

"Our KW brand is a well-established name in the international subsea and deepwater arena, while Pegasus is well positioned and has access to a growing local Malaysian market.

Under a unified KW Subsea brand we will continue to grow our regional capability in Malaysia, leveraging the combined expertise and allowing us to provide an enhanced offering to the Malaysian market."

Refinery improvement project in Oman

November: Petrofac and Korean-based company Daelim were awarded a three-year Engineering, Procurement and Construction contract by Oman Oil Refineries and Petroleum Industries Company (ORPIC). The value of the contract is US\$2.1 billion.

The contract encompasses engineering, procurement, construction, start-up and commissioning services at the refinery, which is located in the Sohar Industrial Area, 230 km north-west of Muscat.

The contract includes improvements at the existing facility as well as the addition of new refining units.

Subramanian Sarma, Managing Director of Petrofac's Onshore Engineering & Construction

business, said: "We have been in Oman since 1988 and have a detailed appreciation for the operating environment. ORPIC is a new customer for us and we look forward to strengthening our relationship as the project progresses."

Production success at Majnoon oil field

September: Majnoon oil field opened its first well (MJ 11), thus achieving first oil. The opening ceremony was attended by the Iraqi Deputy Prime Minister, along with dignitaries from Shell, Petrofac and Iraq's ministries.

Several more wellheads have since been successfully opened and 26 October was the first day that the field broke the 175,000 barrels a day target figure for first commercial production.

Inauguration of the El Merk project

October: The El Merk project inauguration ceremony took place in Algeria, attended by more than 150 people, including Algeria's Energy Minister, Youssef Youssefi and the Sonatrach President, Abdelhamid Zerguine.

Petrofac was awarded the contract for the US\$2.2 billion Central Processing Facility on the site in 2009. It consists of utilities, inlet separation, two oil trains, associated gas



The El Merk facility, Algeria

compressors, natural gas liquids and injection gas units.

The Energy Minister and representatives from Sonatrach and the partner companies thanked Petrofac for their contribution towards the completion of the project, and Ayman Asfari was invited to speak at the event.

Extension awarded on Iraq crude oil expansion project

October: OPO has been awarded an extension with South Oil Company for the Iraq Crude Oil Expansion Project. Worth US\$98 million, OPO will provide operations and maintenance services on phase two infrastructure of the project.

Total renews OPO's contract in North Sea

January: Total has renewed OPO's operations and maintenance contract for a further two years. The contract, worth £34 million, relates to the Alwyn and Dunbar platforms, both in the Northern North Sea.

EVENTS

We are sponsoring the **Nigeria Oil & Gas Conference and Exhibition** Abuja, 24-27 February

We are exhibiting at the **Offshore Technology Conference, Asia** Kuala Lumpur, 25-28 March

Maarten van Aller, from IES, is speaking at the **annual FPSO Conference** Singapore, 6-9 April



The Iraqi Deputy Prime Minister at the Majnoon opening ceremony



The Galkynysh gas treatment plant, built by Petrofac, can process 10 billion cubic metres of gas a year. The total production capacity of the plant is 30 billion cubic metres a year

Petrofac's first 'mega project' was in the Caspian region more than a decade ago – and it's an area that remains of strategic importance today. Robin Knight looks at three countries where hydrocarbons set the pace. Photographs by Phil Sayer

MAKING INROADS IN THE CASPIAN

Pipelines criss-cross the region (right), and the fired heater in the Central Processing Facilities at Galkynysh (far right)



Hyperbole has been part of the Caspian scene at least since the day Robert Nobel travelled to Baku in 1873 to buy locally-grown walnut wood for rifle stocks. When he saw 'spouters' gushing thousands of tonnes of oil, Nobel quickly forgot all about walnut, summoned his brother Ludwig and bought land – with a primitive oil refinery thrown in.

One hundred and forty years later, it is still hydrocarbons that set the pace in the Caspian region. Throughout the territory in and around the Caspian Sea, scores of major projects involving billions of dollars are underway to exploit the great energy riches to be found onshore and offshore. If the oil and gas era is drawing to a close, no one has told the 30 million Azerbaijanis, Kazakhs and Turkmens.

The area's contribution to world energy production remains relatively small on paper – less than 5% for both oil and natural gas. Yet this disguises reality on the ground. Stimulated by major investments in the last decade, no less than 70% of new hydrocarbon production in non-OPEC countries in the three years to 2013 originated from the Caspian. On every projection this trend is expected to persist over the rest of the decade to 2020.

Three diverse countries – Azerbaijan, Kazakhstan and Turkmenistan – are at the heart of the upsurge. Petrofac is represented in each one – "a region of strategic importance to us" in the words of Andy Inglis, head of Petrofac's Integrated Energy Services.

Underlining the point, in Kazakhstan the company has signed a series of contracts in ten years including one related to the giant Kashagan discovery – the largest new oil field found anywhere in the world in the past 30 years. In Turkmenistan a US\$3.4 billion contract signed by Petrofac in 2010 – to help develop the world's second largest gas field – is the biggest ever won

by the company. Extremes of this sort, as Robert Nobel soon realised, are integral to any Caspian energy assessment. For example, the geology is complex, the area is remote from world markets, the 700-mile long sea is landlocked, the climate veers from boiling hot to icy cold, infrastructure is developing, and logistics can be a problem. It makes for a challenging brew.

Man-made archipelago

At Kashagan in the northeast of the Caspian Sea, for example, development issues are described by insiders as "mind-numbingly complicated." Today the most visible evidence of this complexity is the massive scale of newly-built production infrastructure – a huge offshore archipelago of islands that rise out of a lagoon protected by curved atolls, all man-made. Situated 4,200 metres below the seabed, Kashagan is a high-pressure reservoir with the added complication that hydrogen sulphide is mixed in with its hydrocarbon reserves. It is also located in a part of the Caspian Sea where ice packs in the winter months are incredibly strong.

Further south, down the eastern side of the Caspian, the equally immense South Yoloten gas field (now Galkynysh) in the sandy deserts of Turkmenistan has proved scarcely less of an engineering and logistics challenge. Another greenfield site a long way from any urban facilities, it is exposed to shifting winds that create chains of high, long-moving dunes and steep elevations. Soil density is very loose and the water table is non-existent.

To add to the complications of major projects like Kashagan and Galkynysh, the political complexities of a region that includes Azerbaijan, Iran, Kazakhstan, Russia and Turkmenistan cannot be understated. For Petrofac this is a minefield best skirted around by emphasis on core engineering, technical and training

expertise. In Kazakhstan, says John Andersen, Senior Vice President Eastern Europe and Caspian for Petrofac Integrated Energy Services, "we find a lot of opportunity. They want results quickly and we're willing to take some risk, invest, develop relationships and build on our track record."

At Kashagan, Petrofac's contract involved work on three trains of oil, gas and sulphur treatment plants. These were completed by 2012. Since then a Memorandum of Understanding has been signed with KMG Exploration and Production to undertake training and to boost production at 14 mature oil fields (one of which dates from 1911) in the Emba area in western Kazakhstan. The objective, John says, is a 15-25 year contract which will allow Petrofac to provide capability for KMG EP and its subsidiary EMG. He adds: "The training we're offering is attractive to KMG; the notion of mutual gain has been grasped very quickly. Down the line we see an opportunity to extend the agreement. It looks like an awfully good market."

"A strategic project in terms of Petrofac's access into the downstream market was announced in Q3 of 2013 where we are in consortium with Germany's Linde and Korea's GS Engineering & Construction," says ECOM's CIS Business Development Director Sebastian Lagaditis. "KLPE has engaged us to provide services in relation to development of its Integrated Petrochemicals Complex and Infrastructure (IPCI) project, situated in the Tengiz and Karabatan regions of Kazakhstan. We are currently working on the US\$77 million first phase of the contract and subject to satisfactory conclusion it is contemplated that the IPCI project will move into a second phase, in excess of US\$3.5 billion, for a polyethylene plant comprising two streams each producing 400,000 tonnes per annum of product. This is one of several industrial opportunities that have been sanctioned in Kazakhstan. There's a real sense of activity in the country."

In Turkmenistan, Petrofac's breakthrough came in 2010 via the South Yoloten gas field project, now renamed Galkynysh. 'Aggressively' scheduled for completion in 33 months, the contract has remained on time and to budget with inauguration celebrated in September 2013. The result is a gas treatment plant 400 km south of the capital Ashgabat that can process 10 billion cubic metres of gas a year. Much of the facility's production will be exported through the 1,833km long Central Asia-China Pipeline as part of Turkmenistan's agreement to supply China with 30 billion cubic metres of natural gas over the next 30 years.

At its peak 14,500 personnel – three quarters of them locals – worked for



Petrofac on this venture. A dedicated construction training facility was built in the nearby town of Mary. Adding to the challenge were the remote location of the site, the complicated logistics through the Caspian, and the extreme weather conditions.

In addition, the Petrofac-built plant was only one of three being built simultaneously at Galkynysh, the other two being constructed by China's CNPC and Hyundai Engineering of South Korea.

"Despite this, our Petrofac team was able to manage all the complexities well," says Sebastian. "Productivity was comparable to the Mideast, we developed a good relationship with Turkmengas (the host company) and there were no significant changes to the contract.

We also achieved some nice add-ons such as employing local construction contractors, who in turn used the experience to help grow their own businesses."

Focus on training

Across the Caspian in Azerbaijan, Petrofac's involvement goes back even further, to the early nineties in fact. "Our first 'mega' project in the region however came in the shape of the AGT pipeline project where Petrofac played a central role in the construction of the Georgian section of the Baku-Tbilisi-Ceyhan pipeline," Sebastian reflects.

More recently, Petrofac's focus in Azerbaijan has been on training. Since 2003, the company has co-managed the Caspian Technical Training Centre (CTTC)

near Baku with TTE International on behalf of BP and its partners in two major offshore hydrocarbon developments – the giant Azeri-Chirag-Gunashli (ACG) oil field and the equally large Shah Deniz (SD) gas field.

Today, about nine out of ten national technicians working at ACG and SD have graduated from the CTTC, including some 450 new staff each year. Training enhances production, electrical, mechanical and instrument skills at various levels as well as providing a specially-tailored English-language foundation course.

In 2011 the contract to operate CTTC was renewed for a further five years. Two years later it was widened to include an 11-month entry programme for BP's annual intake of 50 or so Azerbaijani graduate trainees to deepen their technical knowledge, business awareness and communications expertise.

As in Kazakhstan and Turkmenistan, much of Petrofac's success in creating a viable business in Azerbaijan is down to the nitty-gritty work of building relationships on the ground through a sustained presence and strong delivery.

In the future there is every chance this approach will produce more results as a raft of major oil and gas projects in the Caspian move from planning to construction. Azerbaijan, for example,

The essentials: Galkynysh gas plant, Turkmenistan

The \$3.4 billion Galkynysh gas field project is Petrofac's largest engineering, procurement and construction project to date. The gas field – formerly known as South Yoloten – is approximately 400km south east of the capital Ashgabat.

After an ambitious 33-month programme, the Petrofac-built gas treatment plant was inaugurated in September 2013, and is capable of processing 10 billion cubic metres of gas per year.

The feed gas from the field contains up to 4.5% hydrogen sulphide, and the development includes gas treatment and sulphur handling facilities, along with well pad and gathering facilities, infrastructure and utilities, condensate processing, storage and 100 km of 56" export pipeline. At its peak, the project had a workforce of 35 contractors with more than 14,500 personnel, three quarters of whom were Turkmen.

In a 30-year supply agreement, much of the Galkynysh gas will be exported to China by pipeline. Below are the thermal oxidizers for the sulphur recovery unit





is gearing up for the second phase of SD development with plans to market gas in southern Europe through the proposed Trans Anatolian Pipeline and/or the Trans Adriatic Pipeline.

For its part, Turkmenistan is also planning the phase two development at Galkynysh, aiming to export an additional 30 billion cubic metres to China. Construction continues on the important East-West pipeline in the country.

Long term, this will move some Galkynysh gas through a new US\$2 billion port on the Caspian for onward transmission, possibly through the long-mooted undersea Trans Caspian Pipeline via Azerbaijan to European markets.

In Kazakhstan, oil production is set to grow two-thirds by 2025 while oil exports should double by 2035 according to predictions by the International Energy Agency. The hunt is also on for a market for Kashagan's one trillion cubic metres of gas.

In other moves the Kazakh government signalled recently that it is committed, as is Azerbaijan, to upgrading old, partially-depleted onshore oil fields.

Meantime all three Caspian littoral countries are growing rapidly and increasingly showing the greater regulatory flexibility necessary to lure

inward foreign investment. Azerbaijan, like Kazakhstan, seems intent on building its own petrochemical industries; the launch of a US\$17 billion oil-gas processing and petrochemical complex 60 km south of Baku is now set for early 2014. And Turkmenistan remains determined to build the costly infrastructure necessary to get its gas to world markets.

High expectations

Over the coming decade, a dozen or more major new pipelines should be built so making it far easier to move the region's hydrocarbon riches to markets as far away as Bulgaria, Italy and Afghanistan.

The critical characteristics for being involved in this development, reckon John and Sebastian, are building good relationships, establishing a positive track record and always showing willing.

Resource nationalism will remain a factor, but as Turkmenistan's emergence from decades of isolation has shown, nothing is forever.

Today the ancient lands bordering the Caspian Sea are on the verge of living up to the high expectations envisaged for them by pioneer investors such as Robert Nobel decades before war and revolution in the twentieth century derailed them. It is a heady prospect.

Three plants were built at the same time at Galkynysh. Above, the safety valves platform on a gas treatment unit, and the thermal oxidizer (right)





The start of the year is a good time for reflection – looking forward as well as back. Taking a long view, Group Chief Executive Ayman Asfari explains to Andrew Cave how the company is evolving, and why he is excited about the future. Photographs by Lee Mawdsley

STAYING THE STRATEGIC COURSE

"I'm as excited about this business as I ever have been," says Petrofac CEO Ayman Asfari as he considers 2014 and beyond.

He has reason to feel optimistic. Petrofac's history – growing its capabilities across the value chain to expand its business and better meet the needs of its customers while assuming carefully-managed risk – is an approach that has characterised the growth of the company from the start.

Ayman and his founding business partner Maroun Semaan, who stepped down as President in January, have grown Petrofac's expertise and taken on risk since 1989 when Petrofac's American founder Ralph Martin asked them to set up and run Petrofac International as the international arm. And it tightly under-pinned the duo's success as they built the business, bought out partners and floated the company

on the London Stock Exchange in 2005.

Recently Ayman and his management team demonstrated to the capital markets how these strengths are the foundations for Petrofac's three phases of growth to date: building and sustaining a world-class onshore EPC business; delivering Integrated Energy Services (IES); and growing and enhancing its offshore EPC capability (see page 20).

But can a services company take on increasing amounts of risk from customers without becoming intrinsically much riskier itself? That, says Ayman Asfari, is the great strategic challenge for Petrofac for the long term.

"Risk is all relative," declares the Group Chief Executive. "It's always a question of whether you're equipped to manage it. If I open a restaurant tomorrow, it'll be a risky business for me because I don't know how to run a restaurant. But we do understand this business, because our

future growth is so clearly underpinned by our current capabilities and track record.”

“After all, this is what we’re here for. We get paid a premium for managing risks on behalf of somebody else.”

Increasingly, clients want to de-risk their own delivery – a development which Ayman sees as an increasing opportunity for Petrofac: beginning with deals that are purely reimbursable and progressing to margins based on key performance indicators and lump-sum contracts requiring more risk to be taken on. And this commercial flexibility is echoed in Petrofac’s IES model, where Production Enhancement Contracts are designed for work on mature assets, with the company receiving a fee for every extra resulting barrel.

“It’s an extremely aligned model,” says Ayman. “If we don’t increase production, we don’t get anything. As far as the customer is concerned there’s very

little risk. We’re deploying the capital and they’re getting the bulk of the value.”

An alternative approach, Petrofac’s Risk Service Contract model, meanwhile, focuses on developing proven undeveloped discoveries, with the fee remuneration repaying the capital spent as well as providing a service margin.

“We have great deal flow,” says Ayman. “Frankly, our ability to grow that business is linked to how much capital we want to deploy, including third party capital; our confidence in our execution capability; and whether we’re going to be in a position to execute well.”

Industry capability

“The IES incentivised contracts are at the ultimate end of that range of risks in that we’re putting in our capital and bringing our capability to bear,” says Ayman. “But when we assume more contract risk, we want to leverage our human capital more

effectively so that we generate a higher return.” That’s achieved, he argues, by measuring returns per employee at Petrofac and maintaining a high level of operational excellence.

Expecting no shortage of hydrocarbon supply in at least the medium term, Ayman predicts that industry capability will form the biggest bottleneck to meeting the world’s energy challenge. Industry infrastructure and architecture are becoming more sophisticated, as producers operate in deeper waters offshore and increasingly extract unconventional resources of very tight oil and gas. Offshore oil and gas production is expected to account for 40% of global production by 2025, with deep water developments expected to account for 13% of global production by 2025 – up from 5% today.

Against this backdrop, Ayman believes the biggest challenge for oil and gas

services groups will be providing the increased level of human capability required to manage these increasingly challenging projects.

“Human capital is going to be the big one,” he says. “Because of the increased difficulty of producing, capital and operational expenditure is going up. That is putting pressure on clients and we’re seeing a lot discussion about capital discipline and the erosion of rates of return. Clients need us to be on plan and on budget, delivering operational excellence, being innovative, and de-risking delivery for them. That, above everything else, is what we must focus on in 2014.”

Local delivery

This is not without its challenges for Petrofac. With 2,000 people joining every year the danger of Petrofac’s deep culture of responsiveness and delivery becoming eroded is one of the risks Ayman admits

to worrying most about.

“Out of the 2,000 people we hire, 300-400 are fresh graduates,” he says. “The rest are hires. We’d like a better balance. We must continue to grow but we’ll never grow to the point where we’d end up not having the right human resources to do the work, being lacking in processes or doing something that significantly damaged our culture. Most of the risk we take in execution is around the local delivery in the countries in which we operate and the challenges of local supply chains in new environments.

“A consistent theme is local content and local delivery. This has been a hallmark of how we run the business for a long time. It’s not easy. We had 14,500 workers in Turkmenistan when we were executing our contract there and more than 70% of them were locals.

“It’s about bringing in local content,

‘We’re still working towards our 2015 target and it’s vital that people remain focused on it.’



‘Risk is all relative. It’s always a question of whether you’re equipped to manage it.’

Pipe capabilities

The vessel will S-lay as much as 4-5 km of pipe a day, in waters up to 1,700 metres deep. It will be capable of laying up to 60" diameter pipeline, pre-fabricating double joints, and with a maximum tensioning capacity of 600 metric tons. It will J-lay up to 36" pipeline built by quad joints, with a capability of 1,500 metric tons in dynamic laying and 2,000 metric tons in lowering the pipe onto the seabed.

Heavy lift crane

The vessel has a revolving heavy-lift 5,000 metric ton crane for platform construction work. It revolves with maximum load at 40 metres radius and can install the 5,000 ton load at 45 metres in tie-back mode. Its auxiliary hook can lower heavy subsea structures onto the seabed at depths of up to 1,500 metres.

'J-lay' tower and moon pool

Pipes are brought up from below deck, lifted vertically into the J-lay tower and welded. The pipes are then lowered into the sea through a moon pool – a dedicated opening through the vessel.

Helicopter pad

Built for a 15-seater commercial Sikorsky helicopter, almost 46 metres above the keel line.

Eating onboard

The vessel's canteen prepares different full meals every six hours to cover the 24hr working shifts. A baker cooks fresh bread and cakes every day. Storage contains fresh food to last 15 days, and dried food to last 6 months.

The stinger

A 100-metre-long pipe supporting structure that hangs behind the ship and controls the bend of the seagoing pipe string in S-lay mode to prevent excessive bending. The JSD-6000 stinger is adjustable, so it can be shortened or lengthened according to water depth.

Deck cranes

There are four deck cranes needed to load the line-pipes from cargo barges, and to lift equipment from the supply vessel. One of the deck cranes is dedicated to subsea works for light structures, filtering out the motion of the vessel thanks to an integrated heave compensation system.

Internal welding area

During S-lay installation, the vessel's structure allows pipe joints to be welded below deck, before the pipeline leaves the rear of the vessel.

Living accommodation

There is accommodation for 399 onboard, in rooms with flat screen TV linked to a satellite and DVD circuit. For off-duty relaxation there is a cinema, a fully equipped gym and a 100-seat conference room.

Lifeboats

There are 4 life boats to cover 400 people, plus a number of additional life rafts for another 400 people. There are also two rescue boats.

The JSD 6000

At 215 metres, the vessel is longer than three 747 aeroplanes laid nose-to-tail. There is deck space of more than 4,000 square metres, and its double-deck feature means that the ship has a pipe storage load capacity of 20,000 metric tons – greater than any existing deep water vessels.

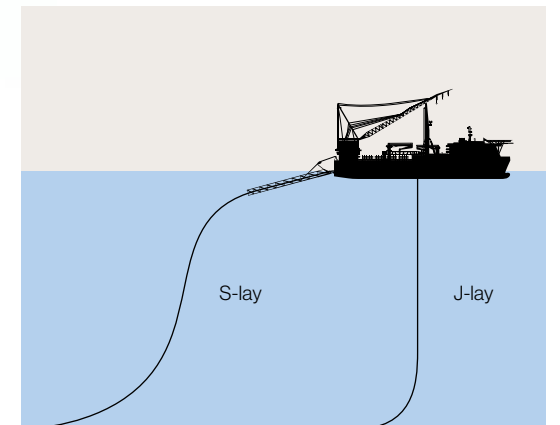
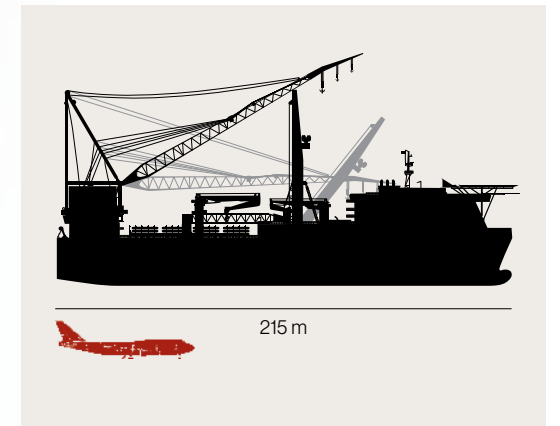
Deep sea pipelaying

The JSD 6000 can lay pipes in either J-lay or S-lay modes. In S-lay installation, pipe leaves the rear of the vessel horizontally as it moves forward, forming an 'S' in the water and guided by the rear 'stinger'. J-lay installation inserts pipe in an almost vertical position; pipe is lifted via the boat's tower and only curves once, the reduced stress allowing J-lay to work in deeper water.

RESOURCE IN DEPTH

Illustration by Jason Harding

This is Petrofac's first offshore construction vessel – the JSD 6000. It's a revolutionary combination vessel for deepwater pipe-laying and construction, which is part of a \$1 billion investment – the most visible sign of the company's moves to enhance its own deepwater capabilities. Deepwater resources will account for 13% of global oil production by 2020, and represent one of the fastest growing segments of the oil and gas sector, particularly the area known as 'SURF' – subsea, umbilicals, risers and flowlines. Petrofac's strategy is focused on accessing the high-end, high-margin work as early as possible, and then attracting the maximum amount of engineering, procurement and construction work around the vessel. The JSD 6000 is on track to be delivered in early 2017 – a revolutionary vessel, at the top of its class. A poster-sized version of these two pages will be sent to the first ten applicants who email 'Vessel Poster' to Petrofacts@petrofac.com



MEXICAN WAVES

In the three years that Petrofac has been operating in the state of Tabasco, the company is laying the foundations for good relations with the local communities.

Photographs by Marc Morrison



Tabasco's mangroves are among the largest in North America, and include seasonally flooded forests and wetlands. Petrofac's operations in Santuario are near to a huge expanse of wetland covering more than 600 hectares, and the company is involved in a conservation programme to protect this important tropical ecosystem in partnership with local landowners and the state.



Jacinto Osorio and the townhall

Tabasco State is prone to flooding, as typified in November when Tropical Storm Sonia hit Mexico hard. Much of the communities' infrastructure was affected – such as the Casa Ejidal (or townhall) in Blasillo, Campo Otates.

Jacinto Osorio, the Comisariado Ejido (or commissioner), describes its previous condition as 'appalling'. The refurbishment was carried out with Petrofac, and meant that the building was remodelled and now boasts a new roof as well as fans to

combat the stifling tropical heat. Jacinto praises the work that was done, and explains that the building is used for a range of events and meetings, such as training programmes for local farmers.

These farmers are an important stakeholder group, making decisions communally. Under a system introduced after the revolution of 1910-20, land in much of Mexico belongs to those who work on it, who retain certain rights to parcels of this communal land known as ejidos.



Roberto Gil Osorio and the health centre

Next door to the Casa Ejidal is what-was-once the community's health clinic. Located below ground, it was completely flooded and, like the townhall, the people were unable to use it. "We did not want to move the service to another community," says Roberto. "It serves 3,000 people, and this includes many elderly people who need support."

Following its renovation, the townhall was used temporarily to provide health services – such as support for maternity and



children – but now the community has reached an agreement with Petrofac to renovate the clinic itself.

"We agreed this two weeks ago, and we hope to start the building work now. With Petrofac, we are seeing changes take place," adds Roberto.

Everything seems saturated with heat and painted with vibrant colours in Tabasco. The 20th century Mexican poet, Carlos Pellicer, was born here – and much of his work captures the intensity of his native state. He wrote: 'Tropics, why did you give me these hands so full of colour? Whatever I touch fills up with sunlight.'

Its fertility brings bounty: alongside the production of agricultural products, such as cacao, coconuts, corn and sugarcane, oil plays an increasing role in the economy today. The region is one of Mexico's main oil-producing zones – and since 2011, one where Petrofac is developing a growing business as the first foreign operator in the country for 70 years.

The company first began developing the Magallanes and Santuario blocks in Tabasco – where production at both fields has increased significantly – and has more recently been awarded two further Production Enhancement Contracts for Pánuco and Arenque in the nearby state of Tamaulipas (see page 5 for details).



**Ana Victoria
Ramirez Bautista
and the pavements**

Road safety is a real problem in this area, with large vehicles rushing by on busy roads every day. Uniformed school children walk in double file along the pavement – an everyday scene around the world. But for the school teacher Ana Victoria Ramirez Bautista, it's a sight for sore eyes.

Based on consultation with community leaders, Petrofac identified this particular road near a school as a risk, and built a pavement to provide safe access to schools. "The children can come and go with more confidence," says Ana Victoria.

"At the first meeting with Petrofac, we didn't believe anything would change, but the company responded quickly to our concerns and now we have our pavement."

However, despite the oil boom in these regions, widespread socio-economic challenges remain.

The areas where the company operates are populated by mostly rural communities facing issues such as poor access to potable water and healthcare, or literacy issues and lack of employment opportunities. Petrofac's commitment to social performance is clear: to operate responsibly, minimising any negative impacts on local communities; to enhance the benefits to society, through employment, supply chain opportunities and the investments made in sustainable development and training; and to establish effective relationships with local communities, based on trust.

This sounds simple in theory, but how is it playing out on the ground? During the first two years (an 'evaluation phase'), the focus was on building relationships with local communities and understanding their priorities and concerns. This meant implementing some visible, quick-win

projects to build trust in those communities: these include health and safety initiatives such as building pavements so that children can walk safely to and from school; supporting local schools with infrastructure improvements such as playgrounds, roofs and sporting facilities; and redeveloping community town halls that are used as health centres and local landowner associations.

Today, as the company moves into steady-state operations, the focus is on building long-term sustainable development programmes that may be less visible but have greater development outcomes, focused on four main categories: education, health, conservation, and sustainable livelihoods. Built into its agreements with the client, PEMEX, the company is committed to spending 1% of its annual expenditure on such projects. This represents a significant opportunity for local communities to improve their standard of living and benefit from oil extraction in their area.



The fishermen and the mangroves

As in many parts of the world the mangroves in Comalcalco in Tabasco are under pressure from various sources such as climate change and deforestation. Petrofac is working with CONAFOR, the national forestry commission, to implement a mangrove conservation programme in the areas surrounding its concessions.

The mangroves provide an important eco-system service to fishermen, such as providing breeding ground for many

species of fish and marine life. The programme, which lasts for five years, covers aspects such as environmental awareness and alternative fishing techniques. It is an example of how conservation and economic livelihoods can go hand in hand.

Alongside CONAFOR, Petrofac will work with the communities to help them to see the value in the ecosystems they rely on, and how conservation can contribute to sustainable economic livelihood and vice versa.



Gaspar Arias Arevalo, the cocoa farmer

Tabasco is often credited as the place where chocolate originated, initially developed by the ancient Olmecs and later refined by the Mayans and the Aztec – and today's continued production of cocoa beans lends weight to that claim.

Petrofac is also working with INIFAP, the national institute of livestock research, on a programme to support cocoa farmers, such as Gaspar Arias Arevalo who works in Rancheria El Guayo in Comalcalco – a region which produces 20% of

the state's cocoa harvest. It is also the westernmost Mayan settlement and contains important archaeological sites like the only Mayan city built in brick rather than limestone.

The programme is aimed at increasing yields and income for the farmers through planting new varieties of crops, through technological inputs to enhance crop yields such as pruning methods and fertilising techniques. It will also help them provide better access to market for their produce.

THE BIG PICTURE EVERYTHING UNDER CONTROL

The curves, lights and scale of the control room of Gasco's 4th natural gas liquids (NGL) train provide a suitably futuristic backdrop for a project designed to meet the growing energy demands of a nation. Located at the

Ruwais complex in Abu Dhabi, the 4th train will process 27,000 tonnes per day of NGL and liquefied petroleum gas. Petrofac Emirates won the contract, alongside South Korea's GS Engineering in 2009.





Rami Mohamed
'This project is surrounded by water rather than sand. So we have to plan everything in advance because of the space limitations.'

THE ISLAND WARRIORS

They're the team conquering the challenges involved in constructing a project on a group of artificial offshore islands.
By Rupert Wright. Photographs by Daryl Visscher



One of the four artificial islands

Lynn Hobballah, an HSE specialist at Petrofac, will always remember when she heard the news that the company had won the contract for the Upper Zakum, UZ750 field development in Abu Dhabi. "We started hearing rumours," she says. "Then I was called into my manager's office and he told me the rumours were true. We had won. I was so happy. It meant that the offshore training I had in Aberdeen could finally be put into use."

The contract is worth approximately US\$3.7 billion – and is particularly challenging, for it is being constructed on four artificial islands, 80km off the Abu Dhabi coastline.

Yousseff AlJalam, a procurement engineer, had been working on the proposal for more than a year, analysing

how best to procure US\$1 billion worth of equipment.

On hearing the official confirmation that Petrofac had won the contract, Yousseff was delighted. "It felt great," he says. "You knew then that you would be based in Abu Dhabi and you knew what you would be doing for at least a couple of years. But then the realisation set in that there was a lot of work to do."

Johnson John, a manager of process engineering, was among more than 30 people from the Sharjah office working on the deal, with help from engineers in Chennai. "Since I was involved in the proposal for more than a year, I knew how massive the project was going to be," he explains.

As soon as the announcement was

The essentials: Upper Zakum project, Abu Dhabi

The UZ 750 project is one of the major offshore field development projects in the United Arab Emirates. The project is located 80 km off the coast of Abu Dhabi, and is being constructed on four artificial islands. It is the constraints of these islands that make the project particularly challenging. "The islands are almost like platforms," says Michel Moufarrej, a subcontracts manager. "Except they are made of soil and sand rather than steel."

The project comprises engineering, procurement, module fabrication, construction and commissioning of island surface facilities (EPC-2) on the four artificial islands. Specifically, this will include wellhead control, manifolds, crude

oil process facilities, water injection and gas lift, oil export pumps, power generation and associated utilities. These facilities will commence operations during 2016.

It is not just Petrofac staff that are getting involved. The contract is worth approximately US\$3.7 billion and was won by Petrofac Emirates in a consortium with Daewoo Shipbuilding & Marine Engineering Co Ltd (DSME) in March last year. Petrofac Emirates' share of the contract is valued at US\$2.9 billion. The client is ZADCO, an Abu Dhabi National Oil Company subsidiary in which ExxonMobil and Japan Oil Development Company are the other shareholders.



Lynn Hobballah
'The offshore training I had in Aberdeen could finally be put into use.'



Michel Moufarrej
'The islands are almost like platforms, except built of soil and sand.'

made official there was suddenly the need for more office space in Abu Dhabi. Fortunately this had been reserved at the Abu Dhabi Business Hub in Mussafah, but two new floors had to be fitted out. Shortly afterwards, more than 300 engineers arrived from Chennai, and they all needed accommodation.

"It was a little scary getting into such a big project," says Johnson. "The requirements are top of the class and we need a very big team."

Within days of the contract award being announced, teams within Petrofac were being assembled. David Knight, a logistics officer, quickly realised that one of the keys to success was getting everyone in Petrofac to appreciate the importance of logistics.

"There are no second chances with offshore projects," he says. "If you get it wrong or a vessel breaks down it is particularly tricky and can lead to long delays."

There are other factors to bear in mind. For an offshore site you need people logistics. "People need to have the right certificates to go offshore," says David. "You cannot just whistle up another welder, they need the certificates that can take three to four months to get. Very quickly we needed to work out what the deliverables were."

Another factor that makes this project particularly challenging is that, in response to the constraints of the artificial islands, it is being constructed in a modular fashion. Some of the modules will weigh more than 3,000 tonnes. They are being constructed

locally in the UAE as well as in Korea, Singapore and China, before being shipped to the artificial islands.

"Every project has some modular element," says Chris Joyce, project controls manager fabrication and construction. "But in this project it is even more important."

"For something of this size you would normally need about 10,000 to 12,000 people on site. But that isn't possible. So you need to build everything twice, once in the yard and once again on the islands. And it doesn't help that every facility has what is essentially a big moat around it. Storage is at a premium."

Rami Mohammad, a member of the constructability team, agrees. "The challenges are similar to those we faced in El Merk in Algeria. This project is also very isolated, but this time surrounded by water rather than sand. So we have to plan everything in advance because of the space limitations."

"Where do we put the batching plant? When do we transport the materials? All this has required a tremendous amount of planning and cooperation with the other contractors. It is all about mitigating risk."

Within the first few weeks, strategy workshops were taking place in Sharjah and Abu Dhabi. Offshore training courses were being run. And subcontractors were being contacted.

"There will be many subcontractors," says Michel Moufarrej, a subcontracts manager. "We need to bring everything to these islands – water, electricity, cleaning facilities, food, accommodation. We even

need to have air-conditioning units for the waste because otherwise it will smell terrible in the summer."

Sung Sang Hyeob, nicknamed "The Shark" because of his offshore experience and love of the sea, is a planning engineer at Daewoo Shipbuilding & Marine Engineering (DSME).

He arrived in Abu Dhabi in September from Houston, Texas. He is in charge of finalising a schedule for the construction, an important component of the project because of its modular nature. "Our company only does offshore work," he says. "So it has been great to get to know Petrofac. I am learning something new every day."

Subramanian Sarma, Managing Director of Petrofac's Onshore Engineering & Construction (OEC) business, says he is delighted that Petrofac has been selected to deliver this landmark project for the Upper Zakum development in Abu Dhabi. "Through Petrofac Emirates we continue to show our commitment to supporting the oil and gas industry in Abu Dhabi and this project builds on the substantial work we have underway in the UAE," he says.

"We look forward to developing our relationship with ZADCO through the successful delivery of this strategically important project."

As well as all the technical, logistical and training challenges, Petrofac procurement staff are having to deal with rather more unusual requests than normal. "Last week we had to buy 96 fridges for one of the camps on the islands," says Yousseff. "I've never had to do *that* before."

Chris Joyce
'It doesn't help that every facility has what is essentially a big moat around it.'



Johnson John
'It was a little scary getting into such a big project.'



David Knight
'You cannot just whistle up another welder.'



WHERE WE WORK OUT OF THIS WORLD

Not many people share their office with astronauts and, on occasion, Hollywood film stars – but then again, not many people work in the world's largest indoor pool.

For the Petrofac trainers at NASA's Johnson Space Centre in Houston, their workplace could house 10 Olympic swimming pools. It is 40 feet deep in places, with surrounding walls that are six feet thick, and it contains 6.2 million gallons of water – as well as one life-size model

of the International Space Station. The Petrofac facility offers safety, survival and emergency response training to the oil and gas industry, and in the two years of operation, it has provided thousands of diving hours without incident. The delegates train in the same pool as the astronauts, so they soon get used to their wondrous work, and after a while they can appear as 'mere bubbles in the pool'.
Photographs by Marc Morrison



In under a year and a half, the PETRONAS Carigali-operated Bekok-C platform – which is about 250km offshore from the Malaysian peninsula – has been refurbished and safely brought back into production without a single lost-time injury.

Bekok-C is a manned platform that serves as a gas processing and compression hub, exporting gas from three fields in addition to producing crude oil and gas from its own wells. Immediately after the fire, a mobile offshore production unit was installed to maintain the gas flow through the damaged platform until its full processing capability could be restored.

In late 2011, Petrofac was invited to submit a proposal for the Engineering, Procurement, Construction, Installation and Commissioning (EPCIC) contract for

the platform restoration. Initially Petrofac management had serious reservations about bidding for such a complex brownfield project on a live and aged platform. Eventually however, the decision was made to take up the challenge and proceed with the bid, based on the use of detailed planning and precise execution to mitigate the risks involved.

The bid was successful and Petrofac was awarded the contract on 1 May 2012 – by which time they were able to hit the ground running. In advance of the award, Petrofac had already invested significant funds and had begun to mobilise the project management team as well as starting engineering and procurement activities. As a result, when the contract was formally awarded, key individuals were

already in place and the hook-up barge had been identified. This in turn enabled early mobilisation of the offshore marine spread to start surveying and demolition work.

New ways of thinking and lessons learned from previous projects were combined with exceptional team work to complete the restoration, on schedule, within budget and safely. Much of this success can be attributed to the way that the 'Alliance Integrated Team' pulled together. This team was formed of representatives from Petrofac and PETRONAS Carigali, and was overseen by senior management from both companies.

Petrofac Project Director David Gregg said: "The early completion of such a complex and risky brownfield project once again demonstrates the 'driven to deliver'

capability of Petrofac in Malaysia."

The scope of the project was large from the outset. Major pieces of work included the installation of three gas turbine generators, three compressors, three modular electrical and instrument rooms, a complete upgrade of the platform instrument control systems and replacement of existing piping, valves and instruments. To give an idea of some of the numbers involved, 1,600 valves and 2,100 spools were installed with 1,100 pipe supports, 180 km of E & I cables were installed and a total of 51 pressure vessels were inspected of which seven had to be replaced and 25 repaired including 144 nozzle repairs.

One of the key principles in the execution plan was to maximise onshore

fabrication and pre-commissioning.

The three modular rooms were fully fitted out and tested onshore before being loaded, shipped offshore and installed. The use of a dynamic positioning vessel allowed the critical installation work to be carried out during the monsoon season.

The work grew by more than 25% from that envisaged in the original contract, which proved a major challenge to the already demanding project schedule. More than 450 workers, accommodated offshore on four separate vessels at peak, worked double shifts to minimise any delays. The main hook-up barge stayed on location continuously for 18 months including two monsoon seasons.

Despite the challenges, the platform was restored, upgraded and safely brought

back into production in the space of just 16½ months – with minimum facilities, and without a single lost time injury. Petrofac Offshore Construction Manager Peter Donnelly praised the attitude of employees and subcontractors: "To complete this project without any lost time injuries is a tremendous achievement," he said. In total, some 2.7 million manhours were worked on the platform which was 'live' for more than 90% of the contract duration.

First gas was exported in September, and Petrofac Executive Vice President Murugan Pitchai was delighted that this is the second EPCIC project that Petrofac Malaysia has delivered ahead of schedule and within budget. "Everyone who was involved should be very proud of the accomplishment," he said.

BACK UP AND RUNNING

Restoring the fire-damaged platform Bekok-C was a complex task – which was completed safely and on time, thanks to an integrated team



Facts and figures

16½ MONTHS

From the start, with minimum facilities, to the fully refurbished platform safely brought back into production

US\$220 MILLION

Value of the refurbishment contract by PETRONAS Carigali Sdn Bhd

2.7 MILLION HOURS

The total recorded man hours worked on the project

0 HOURS LOST

Not a single lost time injury at the time of writing (February 2014)

Using moored work barges (left) and prefabricated modules (right) were key to the project's success



The career choices which graduates make can be among the most important decisions in their lives. We talk to two graduates working at Petrofac, whose career journeys started ten years apart, but whose outlooks on life and work illustrate how little difference a decade makes



DOUBLE VISION

THAER KANJO CLASS OF 2004

Thaer Kanjo joined Petrofac in 2004 after graduating first-in-class as a Mechanical Engineer from Aleppo University in Syria. "I had a scholarship to do a PhD but on meeting Ayman Asfari all that changed," he says. "It was his vision for Petrofac, which matched my own personal vision, which did it."

"He had growth ambitions for the company and a truly international outlook, particularly about leaving

the world a better place than you find it."

In those days, there was less career structure than there is today. There were only 700 employees, and project cycles were fast so you had to hit the ground running and learn quickly on the job.

"Initially, I was focusing on my technical development," says Thaer. "But I soon learned that you need to demonstrate strong managerial skills to progress as well. It is important to take on roles where you can learn to trust your own decision making."

Thaer benefitted from taking

a planned, structured approach to his career – advice he passes on to a new generation. "You need to get a strong technical foundation, but you also need site experience and, if possible, to see a complete life-cycle of a project, then consolidate all that knowledge and experience in a project management role," he explains. He points to various key roles for him (engineering, project, construction and planning) at different sites: Kuwait, Iran, Algeria, Iraq and Tunis. Thaer highlights the importance of using team skills in his learning process. "Understanding how

other team members can help you fill development gaps is also important."

Thaer is keen to look forward as well. After achieving his PMP Certificate he is studying again – for an MBA at Manchester Business School – while he consolidates his experience in project management. Contemplating his future, he talks of his hopes for taking on senior management positions in Petrofac, and perhaps one day taking international standards of industry and business back home to Syria.

Photograph by Jerry Balloch

SAM LISNEY CLASS OF 2013

Sam Lisney is a Graduate Mechanical Engineer who joined Petrofac in September 2013 after being sponsored by the Petrofac Royal Academy of Engineering Fellowship scheme as part of his MSc. Ten years after Thaer, he was also impressed with the Petrofac vision. "To be the world's most admired oilfield services company," he explains. "That's a huge statement and I want to be part of that – whether it's about our values or the tough

commercial targets we set ourselves."

Like Thaer, Sam is excited at the prospect of working on tangible projects that make a difference to the world. "Projects shouldn't just be 'seen on the screen' – they need to be lived," he says. "As I progress in my career, I'd love to work in places like Siberia or China where you can learn socially and culturally – as well as technically of course."

Reflecting on his studies on energy systems and efficiency, Sam says projects like these make good technical and commercial sense. It is clear

he doesn't fit any stereotypical engineering mould.

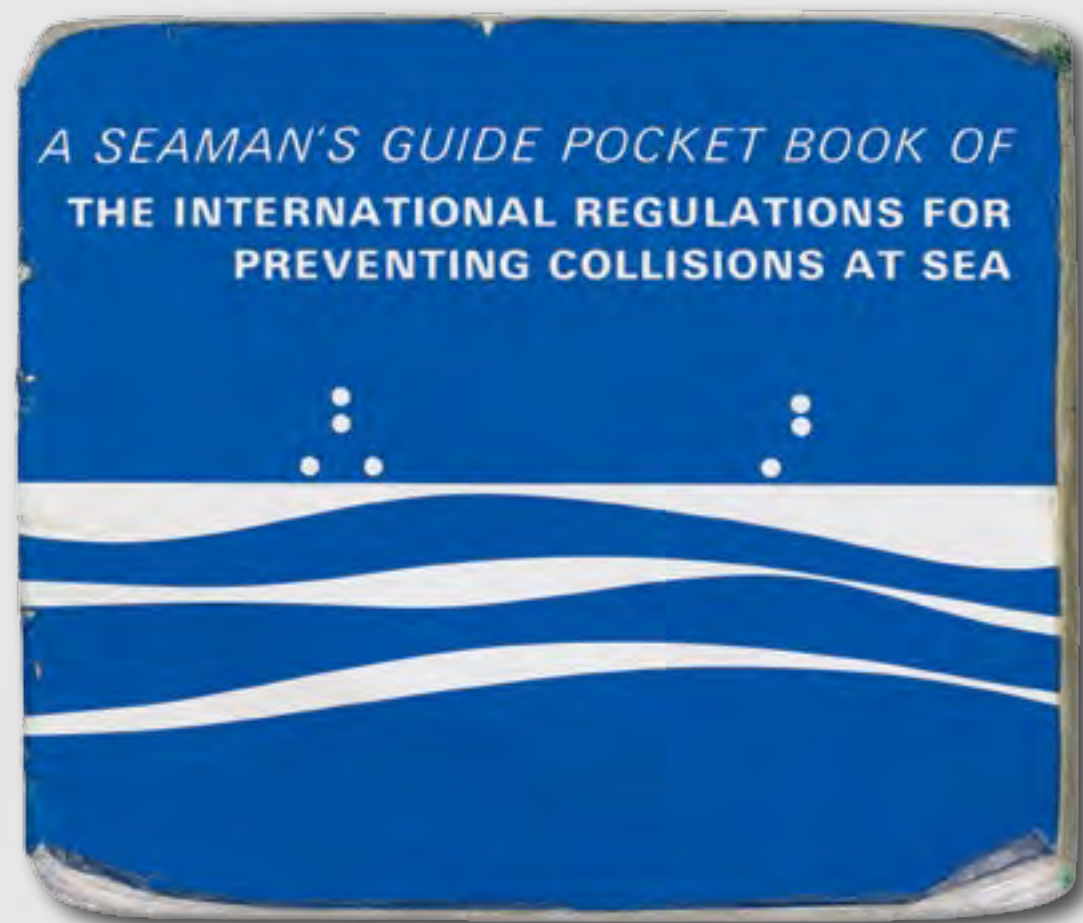
"Engineering does get a bad press from certain students," he smiles. "But the 'boring' image is just not true, particularly in the energy sector with its diversity of projects. Engineers want to push the boundaries as much as anyone, and I love projects where I can use my imagination as well as my technical skills."

As one of the new generation of Petrofac's graduates, Sam benefits from a structured programme which enables him to rotate across many disciplines. "It is important to

have a career plan," he says, "but it is also important to make the most of any opportunities that come your way."

Sam is keen to learn what more experienced colleagues have to say. "I love to hear the advice of an earlier generation of Petrofac employees. I do have an eye on the future – and I would love to be a chartered engineer in ten years' time – but for right now, I can honestly say that with each passing day I know I am learning countless technical details that are already making me a better engineer."

Photograph by Karen Robinson



I ALWAYS CARRY... MY COPY OF COLREGS

Daniel Sim is Marine
Manager for Petrofac UK.
His 'highway code' for the
ocean is never far from his
side – a reminder from days
of working at sea.

Photograph by John Bodkin

“

This is my 1972 edition of the International Regulations for Preventing Collisions at Sea (or 'Colregs'). When I was a Royal Navy officer, this book was always tucked into my back pocket – which may explain its somewhat battered appearance today.

The book, produced by the International Maritime Organisation, is a 'highway code' for the sea. It dictates the navigation rules for all vessels on the high seas, telling you how to move in relation to other vessels, and even defining what a vessel is. Inside are a series of instructions about how seaborne craft should behave: what sounds, what lights, what shapes and signals to use in any given situation.

All officers have to memorise every rule and regulation inside, right down to where the full stops go, which wasn't easy. What made it more difficult was that we were tested regularly, and you had to pass with 100%. We all used acronyms, phrases and rhymes to help us remember – some of which definitely shouldn't be printed here – but it means that I still remember them to this day.

I joined Petrofac in August 2012

to help the company develop a technical marine capability that can facilitate our offshore ambitions. I have a degree in naval architecture, which in short covers design for any vessel or structure that will be used in, on or under the sea. This includes ships, submarines, pipelines, offshore platforms or floating production systems. For example, at the moment, our team is working on all the marine requirements related to the Upper Zakum project – vessel selection, loading operations, motions response, transportation routes and environmental conditions.

During my time as a surveyor, I had to keep the book close to hand as ammunition for debating with any obstreperous captains or masters. And today, while I'm not technically at sea, I still carry the book as a reminder of the real-world application of what we do.

Engineering work can get very detailed; in the marine environment, you can define, calculate and plan as much as you like, but you must always remember to respect the reality of the sea.

”

Do you have an item which you take to work, which says something about you and your work? Let us know, at Petrofacts@petrofac.com



MEET CAPTAIN RECYCLE

How a North Sea platform deck foreman has become an environmental champion

Throwing away a tin can wastes as much energy as if you had filled the can with petrol and just poured it into the ground. Startling facts like these underscore the sense of recycling, both for business and for the environment.

The opportunities are enormous – as demonstrated by Petrofac's Andy Slater, dubbed Captain Recycle by his friends and family.

Andy, a deck foreman and materials co-ordinator on the Dunbar offshore platform in the North Sea, operated by Total, has been championing the benefits of recycling at work, at home, in his village, and is now even planning to take the message to the primary schools of Scotland.

Andy, who reached the finalists of last year's EVE awards for this work, explains that he first became interested in the topic while working with Total's environmental team. "You get hundreds of different kinds of waste offshore, and there is limited space," he says. "So it's about taking the time to segregate things properly. On the Dunbar platform, we get

audited on a quarterly basis, and we've had quarters when we've done so well that we haven't generated enough waste for even one landfill skip."

Education is the main focus of Andy's environmental efforts. "New people pass through the platform every month, and there are some weeks better than others. It hinges on the behaviour patterns of individuals," he explains. "It's only possible with a huge team effort."

You have to be careful, thinks Andy, in how you approach recycling campaigns. "You can over-complicate things or overburden people, which backfires," he says. "Incentive schemes are important, such as getting money back from bottles that you recycle. And in our case, we have a waste disposal key performance indicator that is one of the factors that goes towards our bonus at the end of the year."

Particular successes on Dunbar include the fact that all the drinking cups on the platform are now made of corn and are therefore compostable. He also explains that in one

year alone, they raised £16,000 for the rig's charity fund just by recycling scrap metal.

What he started at work Andy has taken into his local community. "I'm a member of our community council, and we're taking and planning many measures ourselves which were dropped due to government cuts," he says.

Andy was delighted at being nominated for the EVE awards, and amazed at making it through to the finals held in Dubai last November. "It was incredible. We were made to feel really special and part of the wider group, and it was great to meet Ayman Asfari and other senior managers and talk about the work we do."

And in his latest venture, Andy has developed a booklet for schools. "My daughter gave me the idea," he explains, "suggesting that I took what we did at work into her school. It started with a talk for the kids and has developed from there, with a booklet entitled *My Family Recycles, Does Yours?* It has the added benefit that kids can put pressure on parents to recycle as well."

ILLUSTRATION BY DAVID BISKUP

AROUND THE GROUP

THE DAILY COMMUTE

By land, sea and air, Petrofac people around the group make their way to work each day – and the journeys they take can seem quite extraordinary to those on the other side of the world ...

R. Anbalagan
Chennai

I travel by auto rickshaw, as their drivers can manoeuvre faster than cars in the hectic Chennai traffic. This relieves me from the mood upsets caused by my own driving! Autos are also a cheap way to travel.



Bert Gatherum
Aberdeen

I fly out from Bristow's Heliport Terminal in Dyce, Aberdeen, to the Britannia platform, some 130 miles out in the North Sea. It takes between 50 and 90 minutes, depending on the weather.



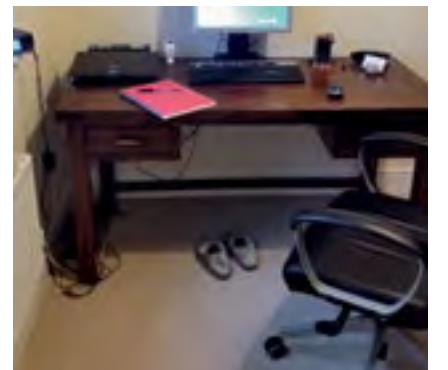
Rebecca Levene
London

Getting the Tube to central London every day is often a squeeze! It's very crowded and I may have to watch 3 or 4 trains go past before I can get on one. But the upside is the free newspaper, *Metro*.



Pamela Campbell
Aberdeen

Some days I have a 120 mile drive in to the office – but on others I have just a 20 step stroll to my study at home in my slippers! One of the benefits of working for a global organisation.



Dean Reyniers
Houston

I ride to work by motorcycle, through George Bush Park, some 20 miles west of Houston. It's so much nicer than the rat race of traffic lights and freeways on the alternative routes.



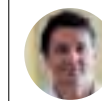
G. Muruganandham
Chennai

I cycle 44 km to work every day. It gives me lots of health benefits and helps in doing my bit for the environment. The roads teach me valuable lessons every day – most important of all being a human being.



Urkalan Bhagath Singh
Chennai

I travel 30 km by two buses each day. I would cycle, but for the pollution, the road condition, safety and the climate. And given traffic congestion, cost and safety concerns, I prefer public transport.



Christopher Paton
Sharjah

My journey to work is a 15-20 minute drive from Business Bay in Dubai to our office in Al-Khan, Sharjah. Luckily the whole world is going in the other direction so it tends to be plain sailing.



In the next edition, we'll see some of the views which colleagues have from their workplace. If you'd like to be featured, please send a photograph of the view, perhaps from your nearest window or somewhere you take a break, together with a description to petrofacts@petrofac.com before April 2014.

PILOTING THE COURSE TO SAFETY

Chris Allen is a key figure in flight safety – not just at Petrofac, but across the whole industry

"I only ever wanted to be a pilot," Chris Allen says. "I did my RAF aptitude tests at 16; they suggested I went away and did an engineering degree, and then in the meantime my eyesight deteriorated..." The briefest of pauses follows. "Of course, that wouldn't matter these days."

Aviation's loss has been a gain for oil and gas – and for Petrofac. Group Director of HSSEIA for the last four years, Chris was previously HSE Director of Oil and Gas UK, and before that of UKOOA, the operators' association that preceded it.

Chris chaired UKOOA's aviation safety and technical group, and is proud of the fact that this group introduced 'virtual radar' for helicopters flying offshore. "A lot of people don't realise that at that time, helicopters were invisible to radar once they got fifty or sixty miles offshore. What we did was a world first for new technology – we put black boxes on a cluster of platforms, that triangulated by 'talking' to transponders on the helicopters as they flew past, thereby allowing them to show up to air traffic control."

This won a Step Change in Safety Award four years ago.

On 1 April 2009, 16 people died when flight 85N, a Eurocopter AS332L2 Super Puma returning from a BP platform in the Miller field, crashed into the North Sea.



Petrofac and HSSG's Chris Allen

Chris – on the cusp of joining Petrofac – not only became the public face and voice of the industry response, but was also instrumental in setting up the Helicopter Task Group (HTG) to act as a communications focal point for sharing information, advice and learning. The HTG, in partnership with others, made step-change progress on issues highlighted by the tragedy; it subsequently developed into the Helicopter Safety Steering Group (HSSG).

Then nearly two years ago began a sequence of issues around the Eurocopter EC225 model (another of the Super Puma family). The HSSG had barely finished working its way

North Sea numbers

Helicopters from Denmark, Netherlands, Ireland and Norway as well as the UK fly the North Sea

Every year approximately 324,000 North Sea helicopter flights are made

Approximately 150,000 North Sea flight hours are logged each year



"We have to be absolutely right, all of the time."

through those two 2012 ditchings in water, and the suspension of the EC225 from offshore flights, when four people tragically lost their lives in another helicopter which crashed on approach to Sumburgh airport in Shetland last summer.

Chris acknowledges that there's been a period of unprecedented soul-searching around offshore aviation. "Naturally, with a run of ditchings, culminating in the Sumburgh tragedy, people working offshore and their families are very anxious about this part of the job."

The HSSG has since secured full assurances that the root causes of the EC225 failures have been identified and have been resolved. They are at the forefront of work to ensure that the aircraft is flying safely. And since the Sumburgh tragedy, they have broadened their remit to address all potential safety issues including non-airframe factors and shared learning.

"Increasingly, our time is divided," says Chris, "between work to progress specific safety improvements, and more general work to restore confidence in flying."

"We are working with the regulators and the three main helicopter operators in a broader review of helicopter operations, including comparison with Norway where the recent safety record

appears better than the UK.

"At the same time, we run regular Helicopter Safety Awareness courses for the offshore safety reps and for the media, so they can get a sense of just how much maintenance goes on."

Meanwhile, the young pilot's dream never entirely went away. Ten years ago he was bought a flying lesson as a present, finally got his pilot's licence and now owns a share in a light aircraft.

"Obviously you don't have to be a pilot to be involved in the work of the HSSG," he says. "But what's helpful is my knowledge of how aircraft are maintained and operated. And an understanding of the regulatory oversight is helpful in terms of making sure we as a company do the right thing."

"Within Petrofac we have aircraft operations, both fixed wing and rotary wing. A key part of these operations is that we use independent expertise to make sure they are operated safely. We subscribe to a risk ranking system for different airlines, and rules about which can and can't be flown – information that is available to our travel bookers. And we arrange annual audits of aircraft we are using in the North Sea, Mexico and Malaysia, for example."

"In aviation, it's not enough that we get it nearly right most of the time. We have to be absolutely right, all of the time."

UNDERSTANDING WHAT MAKES US TICK

Cathy McNulty, Petrofac's new Group HR Director, recalls a time early in her career when she was working for Cable & Wireless, with responsibilities that included their 200 people in the Solomon Islands.

"The telephone rang and it was the general manager asking what he should do for his employees as war had just broken out."

It was, for Cathy, a shocking example of the importance of recognising that international companies have people working in hugely varying environments, with very different cultural norms that can influence behaviours.

This respect for different backgrounds and motivations was something she learned at an early age. "As the youngest of seven children, you pick up pretty quickly that everyone is unique," says Cathy. "What motivates and inspires people varies from person to person, and the art of being a good manager is to get to know the individuals around you."

Cathy joined Petrofac in February with more than 25 years' experience in HR, most recently with ARUP, the international consulting and

engineering group. She has worked in the telecoms, financial, IT and construction sectors, developing and implementing HR strategies as well as other fields such as talent management and leadership development.

In her new role, Cathy has joined Petrofac's executive committee and will work closely with IES and ECOM. It is her first foray into energy, and she is looking forward to understanding the challenges of the sector. But like many functional experts, Cathy believes that understanding an organisation's culture and values is what counts in HR.

"For example, when I worked for Misys, a software company, it was all about HR strategies that worked for fast-paced, short-term cycles. But in ARUP, it was about developing a culture that encouraged freedom of thought."

Even before she joined, Cathy was taking note of Petrofac's culture. "The emphasis on health and safety was very clear from the beginning," she says. "But I am careful not to come in with any preconceived assumptions. The first few weeks will be about getting to know as many



Cathy McNulty is keen to get to grips with the energy sector

'I love the fact that Petrofac has a very clear vision of where it wants to go'

people as possible, gaining a better understanding of the issues they face and how I might be able to help."

One thing already stands out for Cathy. "I love the fact that Petrofac has a very clear vision of where it wants to go. It is so important for everyone to feel part of something that has a bigger agenda and to see how they can contribute to taking the firm towards its goals. I'm excited about the role that I can play in doing that too."

OUR TYPHOON RESPONSE

Petrofac people across the Group raised an impressive \$99,000 in response to the typhoon in the Philippines.

Typhoon Haiyan/Yolanda claimed the lives of around 6,000 people across the Philippines, leading to relief efforts from all over the globe.

Petrofac's donation was sent through Red Crescent in Sharjah.

If you still wish to donate towards the relief fund visit: www.redcross.org.ph/donate



A wooden building reduced to rubble by Super Typhoon Haiyan



Mentor Carl Asibey with Thomas

HOW MENTORING HELPS EVERYONE TO GET AHEAD

The school mentoring scheme set up by Petrofac's Woking office benefits the pupils, the community, and the employees who take part. Photographs by Karen Robinson

When Carl Asibey heard that our Woking office was running a school mentoring scheme, he felt he had to be involved.

"I've experienced, first-hand, the difference having a mentor can make," he says, "In whatever guise they might come."

The 31 year-old Carl, who now works for Petrofac's ECS business in Woking, says his professional mentor played a significant role in his progression.

"When I began working with Petrofac a few years ago, I was assigned a mentor. I'd completed a Masters, but I knew that the real learning would begin when I got into the workplace. My mentor spent a lot of time coaching me, and helping me hone my

skills," he explains.

"So I wanted to give other young people that opportunity."

The Woking mentoring team was established by Corporate Social Responsibility (CSR) Coordinator, Lisa Lewis, who had been exposed to the power of mentoring herself during a community event.

"I thought that Petrofac could do something that really makes a difference," she says. "And by creating an in-house mentoring programme, it means we have the flexibility to do what we want to do."

Having reviewed Ofsted reports and met with the headmasters of a handful of schools, Lisa forged a relationship with Fullbrook – a local comprehensive.

"Fullbrook had everything we

were looking for in a partner school," explains Lisa. "The right approach, staff who are fully engaged in the mentoring concept, and – through its focus on STEM (science, technology, engineering and maths) subjects – alignment with Petrofac's Corporate Giving objectives."

Lisa canvassed her colleagues to form a team of volunteers, and structured the mentoring programme in line with the school curriculum. A leadership professional was commissioned to train the team and facilitate sessions with the pupils, ensuring that mentors develop their communication and interpersonal skills at the same time as the mentees.

This year, the team is working with a 20-strong group of 13 year olds who have chosen – with the involvement of their parents – to take part in the after-school scheme.

The decision to mentor pupils of this age, as they enter an important juncture in their academic career, was very deliberate. This year they will be asked to make subject choices which ultimately affect their future career paths. But according to Lisa, Carl and the other Petrofac mentors, the role of the mentor is not to distinguish between what's right and wrong for the mentee, but to help them make "considered decisions" by offering an outlet, challenging the thought process by asking questions, and providing encouragement.

"The pupils just want someone to listen to them," explains Carl. "We're not there



A mentoring session underway

to preach or judge. As mentors we all share a similar goal, to help our mentees believe in their ability to achieve something, whatever that might be."

Emma Thacker, also based in Woking, is another Petrofac mentor. She explains how helping others makes you feel good – about yourself and your company. "It's great to see the difference you can make to an individual student's life," she says. "It also helps you recognise the different kinds of skills that different kinds of people can bring to any organisation."

Increased employee motivation is just one of the benefits of the programme to Petrofac: the training and development that mentors receive is also taken back into the workplace. And, in an industry that faces a shortage of skilled people, the team say they are working to develop tomorrow's talent.

"Engineering is perceived as being hard to get into," says Carl. "And the rewards of an engineering career are not always apparent, so it isn't always an obvious choice. We're not there to persuade the pupils to become engineers, but if that's something they're interested in, we can use the benefit of our experience to tell them what it's all about."

Petrofac's Head of CSR, Gwen Folland says that extensive research on the business benefits of employee volunteering programmes such as the mentoring programme are well established.

"Not only does mentoring provide a personalised development opportunity for the mentees, but the mentors benefit too, by gaining competencies and skills across a broad range of business relevant areas," she adds.

"We are now working on a UK-wide mentoring programme; we have already established a programme in



Mentor Emma Thacker with Georgina

'The mentors benefit too, by gaining skills and competencies across business relevant areas.'

the London office and Aberdeen are considering developing a programme in the near future."

Woking mentors won the Ethical category in Petrofac's 2013 group-wide employee recognition programme – the EVE Awards – for adding to Petrofac's position in the community. "In fact," says Emma, "the students were as excited as we were to hear on the night of the EVE Awards that the scheme was among the prize winners."

For further information about the Woking Mentoring team, contact Lisa Lewis at lisa.lewis@petrofac.com

For further information about the London Mentoring team, contact Lucy Pinkstone at lucy.pinkstone@petrofac.com



Mairita Jonikane's photo, winner of this year's Picture Petrofac competition

PICTURE PERFECT

Pablo Picasso said that the 'purpose of art is washing the dust of daily life off our souls'. But for Petrofac's Mairita Jonikane – the winner of this year's Picture Petrofac competition – it was the dust of daily life that she turned into art.

Her winning photo, entitled 'The Long and Dusty Road', was taken on holiday in her home country of Latvia on a hot August day. "Cycling in such dry weather on a country road is a pleasure until the moment a car passes," she explains. "This one left a lot of dust behind, which was not such a good feeling – but it looks wonderful and creates a sense of mystery."

Mairita, who is a Technical Publications and Design Assistant, has been with Petrofac just over a year. In the photo is her husband, cycling a little ahead of her in a remote region called Latgale. "At the time, he was still my boyfriend. But now we are married and he is studying architecture in Scotland which is why I came to be working for Petrofac Training Services here in Montrose," she says. "I like that the photo suggests movement towards an 'unknown future' – following my husband on that day trip and in life's journey."

Mairita has also been on a photographic journey, first becoming interested when she

'Magic moments don't wait while you change the settings!'



Mairita and her daughter

studied Graphic Design at Liepaja University. "For me, the camera's technical parameters do not play an important role; generally I use the automatic button because the magic moments don't wait while you change the settings!"

Since the birth of her daughter, Mairita says that her photography has been focused on her family, but that may be about to change. "Becoming an overall winner of Picture Petrofac was a surprise for me, as there were many good photographs to compete with," she says. "Winning the competition will encourage me now to return to other photographic themes."



Jivendra Patil's photo of the Sheikh Zayed Grand Mosque in Abu Dhabi was a runner-up in the Picture Petrofac competition



Making Caspian inroads
'We're willing to take some risk, invest, and develop relationships.'



Out of this world
The delegates train in the same pool as the astronauts

Staying the course
'A consistent theme is local content and local delivery.'

