

+ 06 LAMAR McKAY
New chief talks
Upstream plans

16 ANGOLA ADVANCES
New production drives
country's growth

42 DRIVING SEAT
On the road with
BP tanker driver



THE INTERNATIONAL MAGAZINE OF THE BP GROUP

ISSUE 3 2013

BP MAGAZINE



26 SPOTLIGHT: AVIATION LOGISTICS

ROTATING SHIFTS

BP Magazine spends the day at the Houma-Terrebonne airport, from where more than 12,000 people a month travel to BP's rigs and platforms in the Gulf of Mexico.

Welcome. Throughout life, we rely on the support of other people to achieve our goals – be they personal or professional. No one operates in a vacuum. In business, we talk about the importance of team work, of working as a collective to realise common goals and in every edition of *BP Magazine* we come across examples of teams pulling together in the effort to overcome challenges and deliver the world's energy needs in a safe, reliable way. But, looking through the stories in this edition, that team effort bounces off almost every page: whether it's Lamar McKay – the company's new Upstream chief executive – urging new recruits not to underestimate the power of team work (page 06) or the way in which three companies, with very different backgrounds and cultures, have come together to lift Iraq's Rumaila field into the top two of the global super league of giant oilfields (page 34). Meanwhile, Jeremy Gibbs – himself one of a 289-strong UK team of BP tanker drivers – talks about his pride in driving around some of the Team GB Olympic and Paralympic athletes (page 42). From the successful start-up of the first major unit in the Whiting refinery modernisation programme (page 14) to the daily operations of BP's aviation logistics team in the Gulf of Mexico (page 26), it all comes down to team work. Even this year's *BP Portrait Award* winner got a helping hand from her son (page 54).

Lisa Davison > Editor

BP MAGAZINE

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managing editor

David Vigar
david.vigar@bp.com

editor

Lisa Davison
lisa.davison@uk.bp.com

distribution

Carolyn Copland
+44 (0) 20 7496 4340

design

Phil Steed – Steed Design
phil@steeddesign.com
www.steeddesign.com

print management

Williams Lea

image contributors

BP Imageshop
Magictorch
Lance Bell

Day's work: a PHI Sikorsky S-92 secured on the flight line just before sunset, following a day's activity flying passengers to and from platforms and rigs in the Gulf of Mexico. **Photograph by Marc Morrison**

contents/issue 3 2013

+ Features

06 In conversation BP's new Upstream chief executive Lamar McKay discusses the ongoing evolution in the company's exploration and production business, the importance of keeping things simple and why graduate development is a subject close to his heart. By Lisa Davison **Photography by Graham Trott/Marc Morrison/Stuart Conway/Mehmet Binay/Richard Davies/Aaron Tait/Rocky Kneten**

16 Angolan growth Much has changed since Angola's civil war came to an end a decade ago, and with new production coming onstream at the giant BP-operated PSVM development, there's no sign of the country's transformation slowing down any time soon. By Chris Reynolds **Photography by Richard Davies/Henrique Malungo/Robert Wine. Illustration by Magictorch**

Cover story

26 Houma bound Every month, some 12,000 people travel through the Houma heliport on their way to their jobs offshore Gulf of Mexico. *BP Magazine* went to visit BP's aviation logistics team to find out how they keep everyone moving safely. By Eric Hanson **Photography by Marc Morrison**

34 One team Since 2009, BP and its partners PetroChina, South Oil Company and State Oil Marketing Organisation have worked together to breathe new life into Iraq's Rumaila field. The effort is paying off, with the field now second place in the global super league of giant oilfields. By Martin Thomas

Photography by Mehmet Binay

42 On the road Take a trip out on the UK roads often enough and eventually you'll come across one of BP's fuel tankers travelling to and from service stations delivering vital supplies to customers. *BP Magazine* spent the day with one tanker driver to find out more about the role and how developments in technology are enhancing safety out on the roads. By Jaclyn Clarabut

Photography by Richard Davies

+ Regulars

04 For the record A snapshot of BP news and statistics from around the world.

14 Viewpoint First major unit online as part of the Whiting refinery modernisation programme.

Photography by Joshua Drake

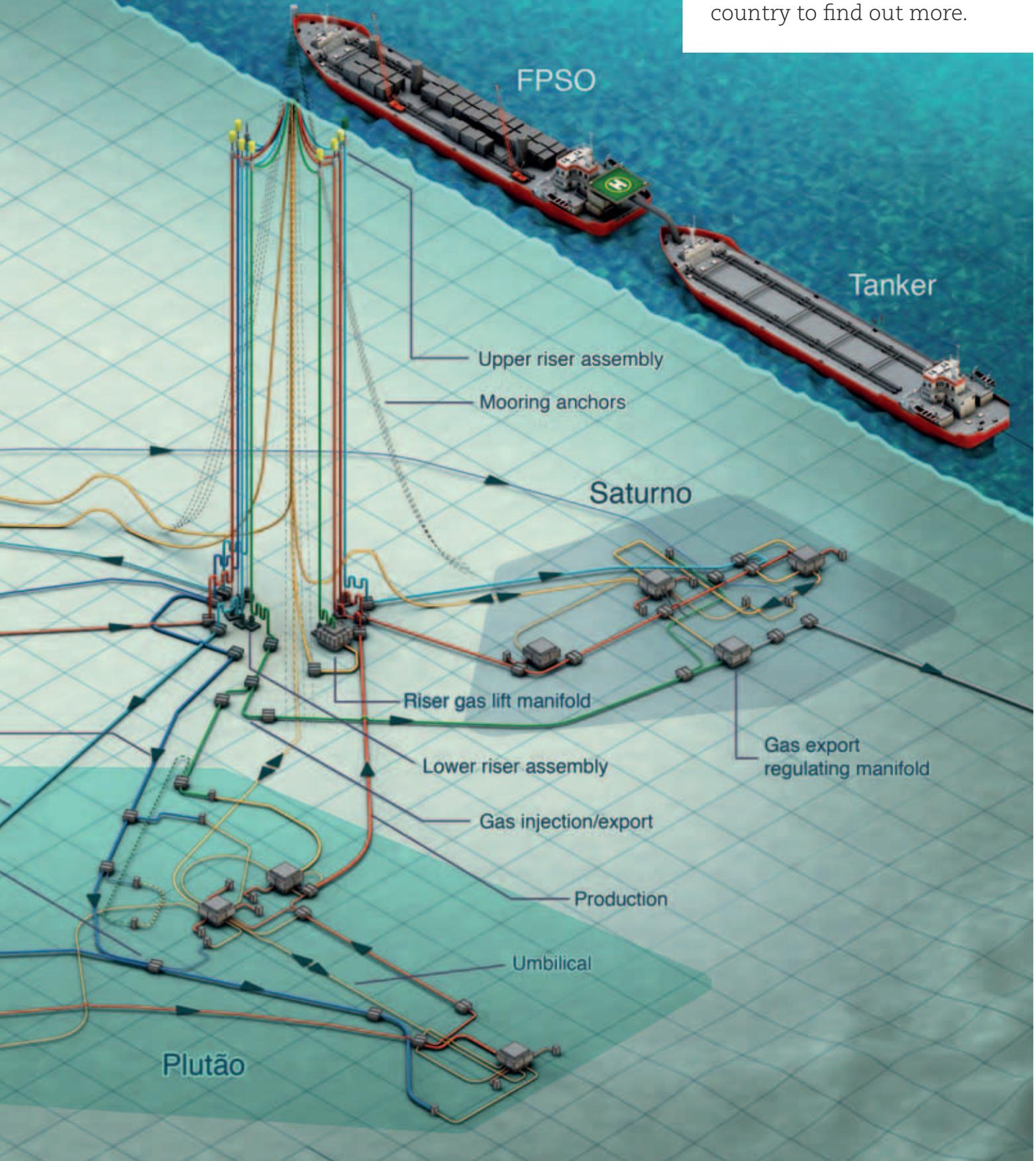
40 Viewpoint This year's BP Big Screens launch with a live relay of Kenneth MacMillan's dark ballet *Mayerling*. **Photography by Richard Davies**

50 Archive Methods of fuel transportation have changed somewhat since the early days of the oil and gas industry. **Photography by BP Archive**

54 Parting shot This year's BP Portrait Award winner keeps it in the family. **Photography by Richard Davies**

16 Underwater city

BP's subsea PSVM development in Angola is so large it has been described as an underwater city. *BP Magazine* visits the country to find out more.



For the record

Highlights from around the globe > Summer 2013

the quarter in numbers

7

The number of 160,000 square metre liquefied natural gas (LNG) vessels under long-term charter to the Angola LNG project

8

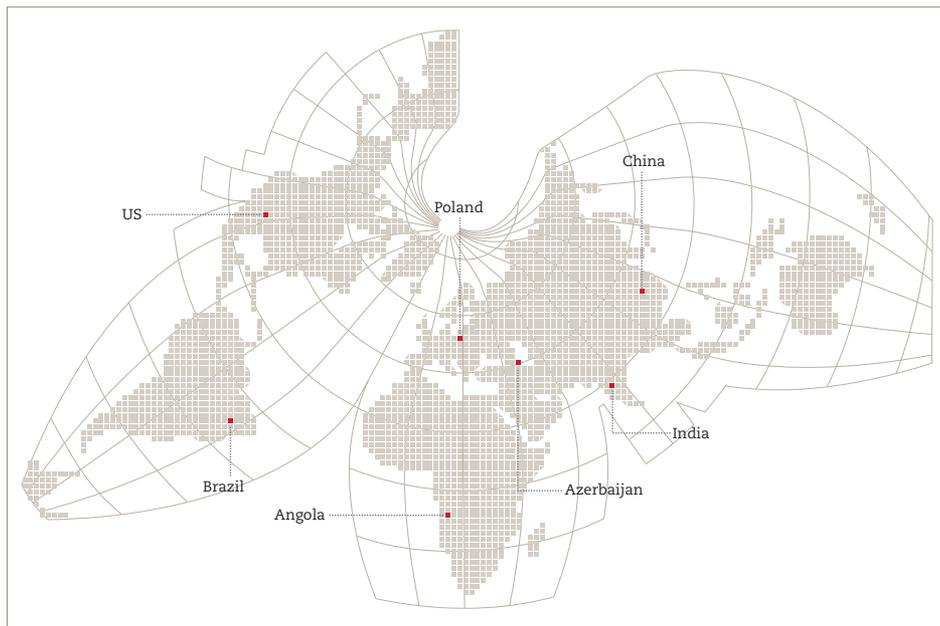
Number of deepwater blocks BP and its partners have won in Brazil's latest bid round. BP will operate two of the blocks

1,969

Number of entries for this year's BP Portrait Award

\$1 billion

Amount of new investment BP is planning to add to its Alaska North Slope fields over the next five years



Aerial view: the Shah Deniz gas platform in the Caspian Sea, Azerbaijan.

AZERBAIJAN: PIPELINE DECISION

The Shah Deniz consortium, in which BP is a partner, has selected the Trans Adriatic Pipeline (TAP) to deliver gas volumes from the Shah Deniz stage two project to customers in Greece, Italy and southeast Europe. The decision represents an important milestone in the consortium's multi-phased approach to the opening of the Southern Corridor. Initially, the Southern

Corridor will deliver up to 10 billion cubic metres a year of Shah Deniz natural gas to European markets. The project, with its associated pipelines, will cost more than \$40 billion and will bring more than 16 billion cubic metres a year of Azerbaijani gas to market. "Choosing Italian and southeast European markets for delivery of gas from Shah Deniz stage two is a major step forward

for the development of our project," said Gordon Birrell, regional president for BP in Azerbaijan, Georgia and Turkey. "We are very pleased that the comprehensive and very competitive pipeline selection process has concluded, so that we can move forward with the Southern Gas Corridor. This will bring gas from the Caspian Sea directly to Europe for the first time."

NEWS IN BRIEF

China

Zhuhai expansion

BP and its partner, Zhuhai Port Co, have received final approvals from the Chinese Government to construct a third purified terephthalic acid (PTA) plant, at Zhuhai, Guangdong (below). The plant will have a capacity of 1.25 million tonnes per year and is expected to start up in late 2014. PTA is an important feedstock for polyester used worldwide in food packaging and textiles.



Poland

New territory

Air BP has signed an agreement with Grupa Lotos to form a new joint venture to manage the supply, logistics and marketing of aviation fuel in Poland. Called Lotos-Air BP Polska, the joint venture will be formed by Air BP buying 50% of Lotos Tank, the wholly-owned aviation subsidiary of Grupa Lotos. Air BP and Lotos will be equal shareholders in the company, with both bringing valuable strengths and expertise. Initially, Lotos-Air BP Polska will operate at Gdansk, Warsaw and Krakow airports. Completion of the deal is subject to competition authority approval.

US

Clean-up finishes

Following the extensive three-year clean-up effort, the US Coast Guard is ending active clean-up operations in Mississippi, Alabama and Florida and has announced that the three states were expected to complete the transition back to the National Response Center (NRC) reporting system by mid-June 2013. The announcement is the result of the extraordinary progress made cleaning the Gulf of Mexico shoreline. Working under the direction of the Coast Guard, and in cooperation with state agencies and local governments, BP has spent more than \$14 billion and 70 million personnel hours on response and clean-up activities.

US

Refinery sale

BP has completed its previously announced sale of its Carson, California, refinery and related logistics and marketing assets in the region to Tesoro Corporation for approximately \$2.4 billion, as part of a plan to reshape BP's US fuels business. Cash proceeds from the sale include approximately \$1.075 billion for assets and an estimated \$1.35 billion primarily for inventory at market value and other working capital.

India

Gas discovery

Reliance and its partners, BP and NIKO, have made a significant gas and condensate discovery in the KG D6 block off the eastern coast of India. The KGD6-MJ1 well was drilled in a water depth of 1,024 metres (3,360 feet) – and to a total depth of 4,509 metres

(14,793 feet) – to explore the prospectivity of a Mesozoic Synrift Clastic reservoir lying more than 2,000 metres (6,560 feet) below the already producing reservoirs in the D1-D3 gas fields.

Angola

LNG start-up

Production of liquefied natural gas (LNG) has begun safely at the Angola LNG plant in Soyo, Angola. The facility was built to create value from the African country's offshore gas resources and its first cargo was shipped on 16 June. Angola LNG is a partnership between Sonangol, Chevron, BP, ENI and Total that will gather and process gas to produce and deliver LNG and natural gas liquids. The project has an expected life of at least 30 years.

Global

Stats launch

The *BP Statistical Review of World Energy 2013* – the 62nd annual report – has revealed that 2012 had the largest single-year increase in US oil production ever recorded, and new evidence of the flexibility of the world's energy system in

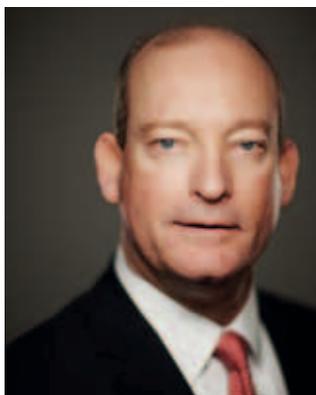
meeting rapid global change. Elsewhere, 2012 saw the largest annual decline in world nuclear output. In Japan, where nuclear power generation all but disappeared after 2011's Fukushima accident, higher imports of fossil fuels, including liquefied natural gas, 'kept the lights on'. In Europe, where gas prices were higher than in the US, power generators took the opposite course from the US, and substituted coal for gas.

US

Safety recognition

For the fifth time in 10 years, BP's Decatur petrochemicals plant, US (below), has been awarded the first place recognition award from the Manufacture Alabama Safety Conference for its outstanding safety performance. "This award is a great accomplishment for the entire site. Our employees truly live our guiding principle of a safe workplace each and every day," said Decatur site manager Terry Welch. The site's Occupational, Safety and Health Administration recordable injury rate has decreased significantly over the years, dropping 68% since 2001.





Broad business: Lamar McKay (above) became BP's Upstream chief executive in January 2013, overseeing the businesses that find and produce oil and gas. Opposite (clockwise from top): onboard Greater Plutonio, Angola; at work on West Sirius, Gulf of Mexico; the *Stena Carron* drillship in the North Sea, UK; studying seismic data in Jordan; and the Valhall platform in the Norwegian North Sea.

FIRM FOUNDATIONS

*In January 2013, BP announced that Lamar McKay, then chairman and president of BP America, was to take up the top post in its Upstream business. McKay talks to **BP Magazine** about the ongoing evolution taking place in the business, the importance of simplification and building a career in the industry.*



Interview> Lisa Davison **Photography**> Graham Trott/Marc Morrison/Stuart Conway/
Mehmet Binay/Richard Davies/Aaron Tait/Rocky Kneten





BP's chief executive for the Upstream, Lamar McKay, has had what he himself describes as "one of the most interesting careers I think somebody could have."

He started out in 1980, like many in the company, as a petroleum engineer working for Amoco in the US, rising through the ranks to become the head of the Gulf of Mexico Shelf in 1997. A two-year stint working on the BP-Amoco merger and as head of strategy and planning for the Upstream business was followed by a period leading the Central North Sea business. McKay then moved into a succession of roles in BP's London headquarters and beyond, where he worked on a series of complex issues, focusing particularly on Russia and the US

– two countries critical for the company. He's spent time working with the Russia/Kazakhstan team and served on the board of TNK-BP, BP's former joint venture in Russia. As an executive vice president in the US, he led BP's efforts to resolve various group-level issues, following the accident at the Texas City refinery and oil spills in Alaska. In February 2009, he was appointed chairman and president of BP America and assumed the additional role of chief executive of the Gulf Coast Restoration Organization in October 2010.

His appointment earlier this year as

“It’s important to understand how to operate in an environment in which lots of people have to co-operate in order to get things done, you have to prioritise well, communicate well and persevere. This is a long-term business. The decisions we make today often won’t show up for another 10-20 years.”



Daily operations: driller at work in the driller cockpit on BP’s Valhall platform in the Norwegian North Sea (left). Above: onboard the Cassia platform in Trinidad and Tobago.

chief executive of Upstream has McKay returning to his roots, leading the part of BP that is responsible for finding and producing oil and gas.

Three years ago, BP began to restructure its Upstream business into functions, bringing together groups of professionals who work in specific disciplines around the world into a series of global functions that include exploration, wells, projects, operations, human resources, technology and finance, among others. The changes have been designed to deliver excellence in both safety and commercial performance. McKay’s

combined experience in engineering, commercial and regional roles makes him the ideal person to oversee this continuing transformation of the Upstream business.

“I try to understand things from an engineering perspective first – that’s my background. From there, it’s important to understand how to operate in an environment in which lots of people have to co-operate in order to get things done, you have to prioritise well, communicate well and persevere. This is a long-term business. The decisions we make today often won’t show up for another 10-20 years.”

There’s no doubt that the Deepwater Horizon accident in 2010 left BP a changed company. As well as moving its Upstream business to the global, functional model, BP set up a robust new safety and operational risk organisation and launched a programme to divest billions of dollars in assets – some \$30 billion coming from the Upstream alone.

Many of the nuts and bolts of the restructure are now in place and, according to McKay, are aligned with BP’s focus on value rather than volume – generating profit by concentrating on the barrels that create the most value rather than simply trying to increase production generally.

Executing the plan

McKay is clear on what this means for the Upstream organisation: “Now, it’s about execution within the functional model. We have a strong slate of quality projects around the world, in places such as Azerbaijan, Angola, the North Sea and the Gulf of Mexico. If we execute our plans, we have the potential to grow production, but, more importantly, to grow the quality and the value of that production. We need to drill wells better; we need to continue to be great explorers; we need to build projects on time that perform from the moment they come online. We also need to manage our reservoirs very well, they are the source of our cash flow.”

The delivery of these plans requires effective integration, which, says McKay, starts with clear communication and – critically – simplification of processes, procedures and decision-making across the organisation.

“There’s been a lot of important activity over the past few years, both pre- and post-Deepwater Horizon,” he says, “We have a lot of good processes in place, now we just need to strengthen the way we individually and collectively implement them. Simplification covers very big issues, but at its root can be very discrete and individualistic. Recognising this, we’re working to make sure accountabilities and delegations are clear; who owns what task, what risk; who is making decisions over »





Global scale: The BP-operated Thunder Horse platform at night, Gulf of Mexico, US (main image); above, at work onboard BP's Chirag platform in the Caspian Sea, Azerbaijan; and looking out over BP's operations in the Khazzan onshore field, Oman (below).



small things, medium things, big things; and in those instances where someone runs into an issue that they do not feel they can solve within their broader team, we are working to clarify how best to escalate so the issue can be resolved promptly.”

He continues: “We are also working very hard to improve planning processes, which helps us as we plan events well into the future. For example, in order to maximise value over the longer term, it is important that the integration of a reservoir and the activity set to develop it further are matched over a longer period of time. If our planning processes are focused too much on the short term, we will limit our potential to capture value farther down the road.”

A key element of developing effective plans is building in safety and compliance from the outset. For McKay, this is fundamental. “Delivering our plans and activities, which are built from the ground up reflecting our focus on safety, is good business and, thus, our collective goal. From my perspective, a good business is a safe business – one that rigorously executes its plans and is diligent, risk aware, and continuously striving to improve performance across the board.”

Message to investors

Speaking of performance, McKay is one of several senior leaders in BP who spends a proportion of his time listening to BP investors in order to understand their point of view and share the company’s vision for the future. The challenge over the past few years has been to help investors to understand the long-term nature of the business – McKay’s 10-20 year timeframe – and continuing to build confidence that BP is on the right track. But, is the message getting through? McKay thinks so.

“I think investors are cautiously optimistic. They can see and understand our overall portfolio but, obviously, we’ve made a lot of changes with the divestment programme. So, we’re working hard to share our goals with them. For our business to be competitive, we have to be good at what we

do, both in terms of safety and functional excellence. That is why it is so important that we now execute the plans we’ve laid out. The next few years are going to be big for us. Under our 10-point plan, we’ve said 2014 is going to be about increasing operating cash. I think the bottom line is our investors are watching us closely, so it’s important that we deliver on our plan.”

Developing capability

Capability has a significant role to play in that delivery and in the past few years, BP has worked hard to both recruit new talent with specific technical capabilities into the Upstream and support those already working for the company, in order to develop their skills and careers. It’s a subject close to McKay’s heart and outside his BP role, he has been a member of the education advisory boards for the Massachusetts Institute of Technology, the University of Houston and the Mississippi State University. His role on all three has a specific engineering aspect to it, but it also reflects his belief that graduate recruitment is critical to a company such as BP.

“We’re actively increasing our graduate recruitment, particularly in our technical disciplines, by around 50% over the next couple of years. I am interested in developing the next generation of the workforce. We operate critical infrastructure, we’re innovating constantly and going to more difficult areas, so having a strong pipeline of capable, qualified employees is vital if we are going to compete over the next 50 years.”

As a graduate into the industry himself, McKay is living proof of how far you can progress. So, what advice would he give a graduate starting out today? “This business is innovating every second of every day and every employee has something to add that moves this business forward. I think I would tell people to work hard, build your foundation, do the best job you can at the time and don’t underestimate the power of teamwork. You can make differences you never dreamed of.” ■

Upstream life: the *Ramform Sterling* seismic vessel offshore Australia, which conducted a 3D seismic survey in the Great Australian Bight (opposite top); at work in Durango, Colorado, part of BP’s North America Gas business (bottom left); Lamar McKay meets workers (bottom right) onboard BP’s PSVM floating, storage production and offloading vessel in Angola.



“I think investors are cautiously optimistic. They can see and understand our overall portfolio but, obviously, we’ve made a lot of changes with the divestment programme. So, we’re working hard to share our goals with them...The next few years are going to be big for us.”





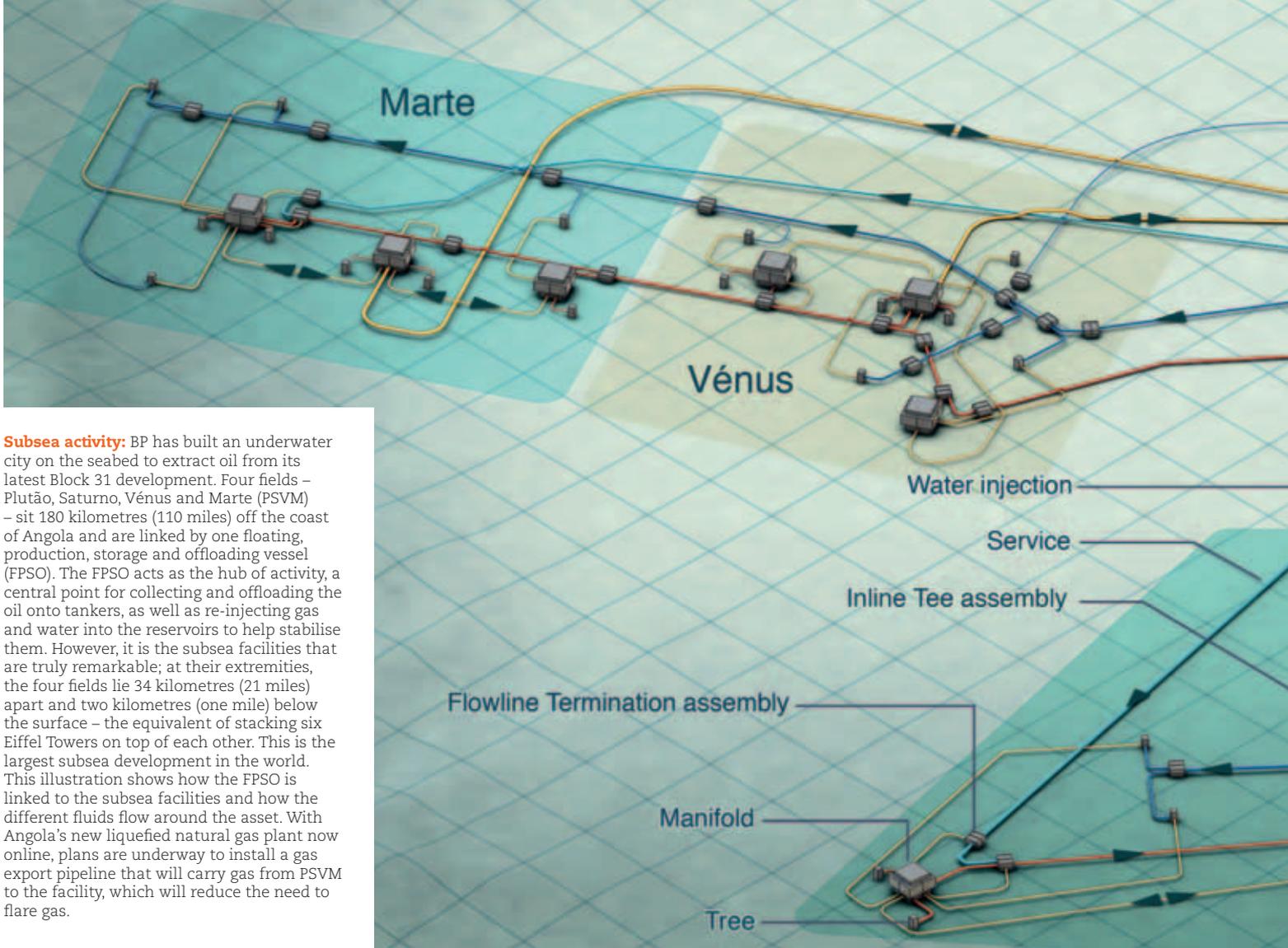
Modernisation milestone

The equipment in this photograph marks a major milestone for BP's Whiting refinery and its multi-billion-dollar modernisation programme. It is a new 250,000 barrel-per-day crude distillation unit that will help the refinery significantly increase its heavy, sour crude processing capability to around 80% of the overall available crudes. The new unit reconfigures the original 12 Pipestill unit that first began operating in 1959. Crude distillation is the first major process in the refinery, in which crude oil is heated and separated into different products, while also removing impurities. Javier Deluna, a retiree who was brought back to assist with the 12 Pipestill project, was 'amazed' when he first saw the new vacuum tower standing almost 50 metres (165 feet) high, perched on a concrete pedestal that itself stands 26 metres (86 feet) tall, with pipe racks almost as high as the tower, and all the new equipment around it. "The new vacuum tower is 13 metres [43 feet] taller and 2.2 metres [7.5 feet] wider than its predecessor, big enough to hold the former vessel comfortably inside it before the internals were installed," said Deluna. Construction on the Whiting refinery modernisation programme is now more than 95% complete, with additional upgrades due for completion in the second half of 2013. *BP Magazine* will report on the programme in full in a later edition. ■

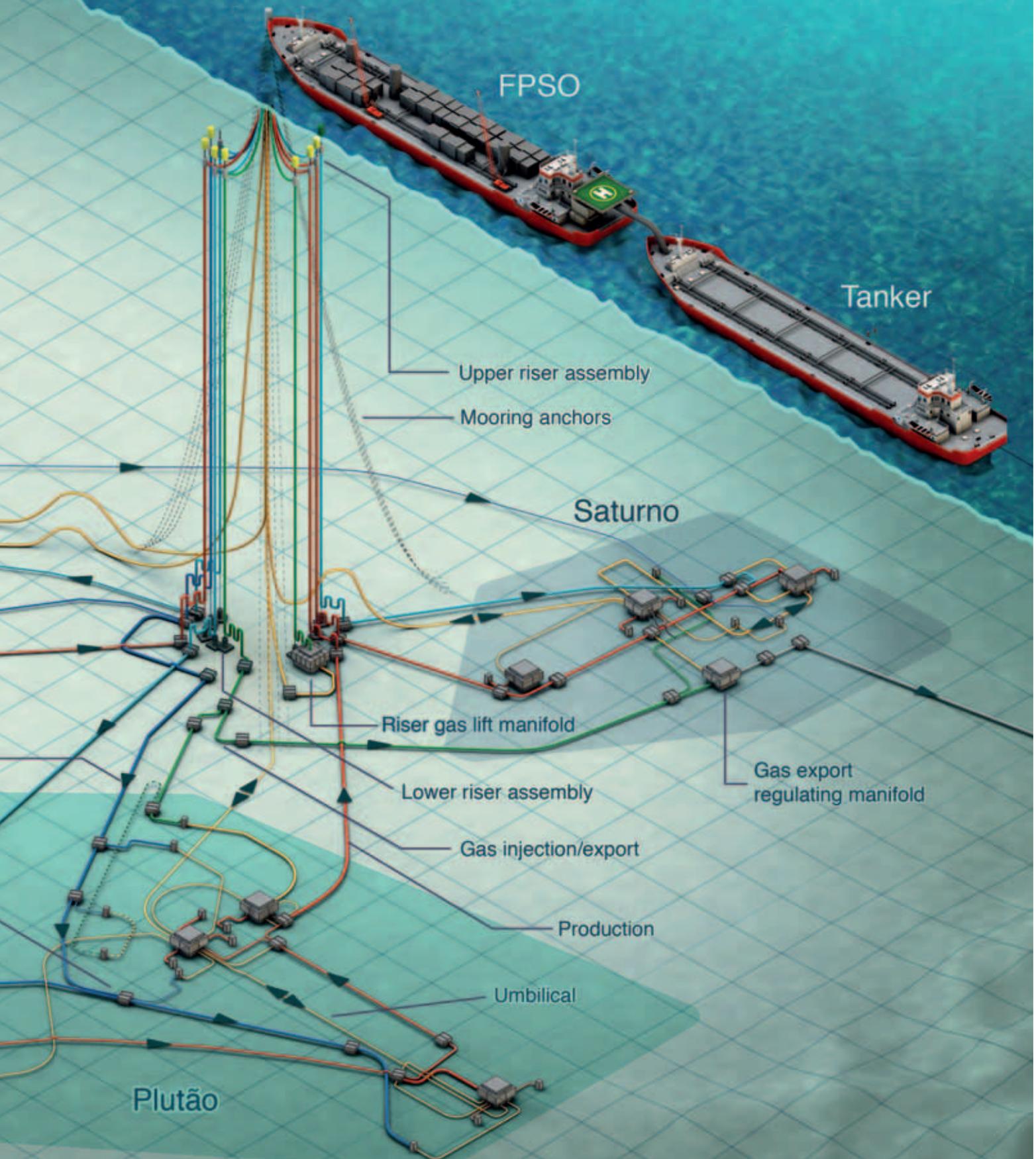


ATLANTIC CITY

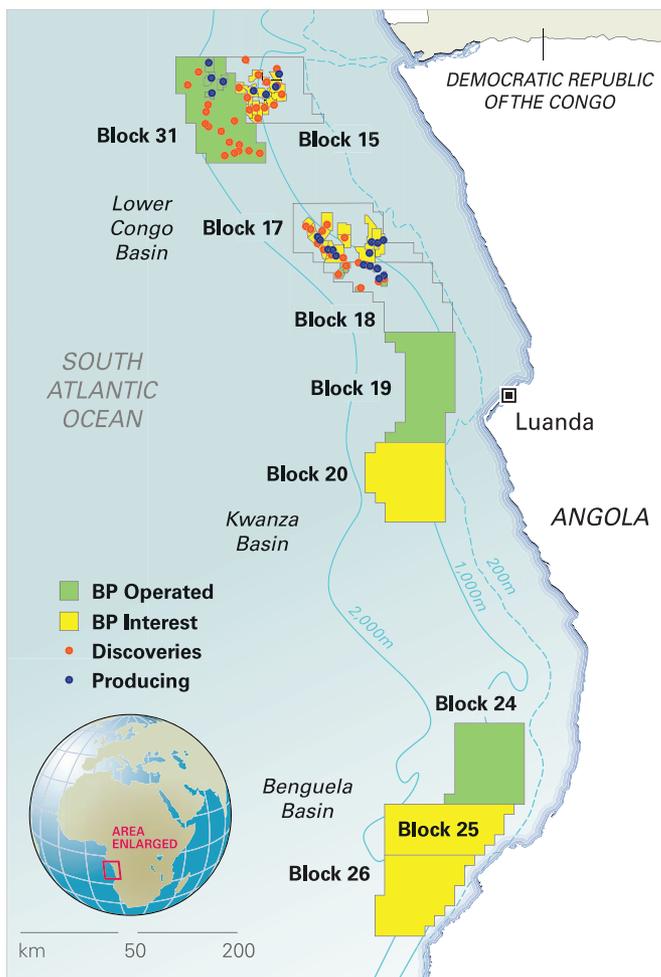
As BP increases production from its newest development – described as an underwater city – in Angola, *BP Magazine* travels to the country to see why it is one of the company’s four key growth areas.



Subsea activity: BP has built an underwater city on the seabed to extract oil from its latest Block 31 development. Four fields – Plutão, Saturno, Vénus and Marte (PSVM) – sit 180 kilometres (110 miles) off the coast of Angola and are linked by one floating, production, storage and offloading vessel (FPSO). The FPSO acts as the hub of activity, a central point for collecting and offloading the oil onto tankers, as well as re-injecting gas and water into the reservoirs to help stabilise them. However, it is the subsea facilities that are truly remarkable; at their extremities, the four fields lie 34 kilometres (21 miles) apart and two kilometres (one mile) below the surface – the equivalent of stacking six Eiffel Towers on top of each other. This is the largest subsea development in the world. This illustration shows how the FPSO is linked to the subsea facilities and how the different fluids flow around the asset. With Angola’s new liquefied natural gas plant now online, plans are underway to install a gas export pipeline that will carry gas from PSVM to the facility, which will reduce the need to flare gas.



With palm trees sprouting from the waterfront and skyscrapers popping up across the city's skyline, everything in Angola's capital city, Luanda, has a feeling of growth. Built originally for 500,000 residents – but now home to around 10 times that number – the city's traffic-jammed streets and sprawl of housing show how much the country changes by the day.



Even on the horizon, as you look out to the Atlantic Ocean, you can see growth. Dozens of tankers sit on the still, blue water, a glimpse of the country's flourishing oil and gas industry.

Angola is one of four key focus areas for BP, alongside the Gulf of Mexico, Azerbaijan and the North Sea, and the company is now benefitting from some of this growth, after years of heavy investment. BP has brought online its second operated development, PSVM, to join Greater Plutonio, which started up in 2007. There are also two non-operated producing developments, all of which means a daily output that now exceeds 200,000 barrels of oil equivalent net to BP and provides around one sixth of the company's oil production.

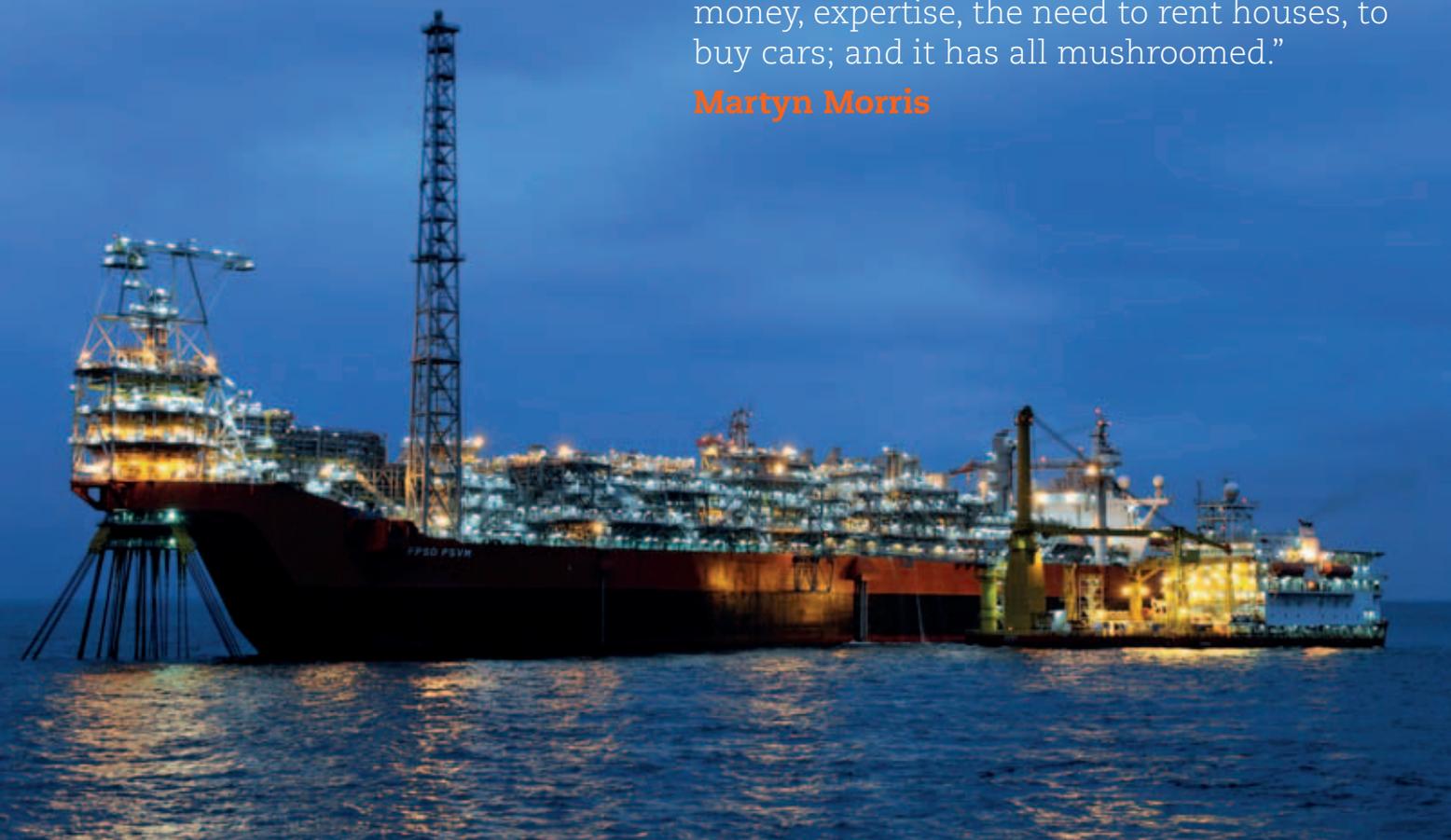
BP's regional president for Angola, Martyn Morris, is the man tasked with overseeing this important part of the company. He says: "Oil has been a huge help to the country. If you look at Angola today, there are now 15 oil and gas operators here. They have brought in money, expertise, the need to rent houses, to buy cars; and it has all mushroomed. All the service industries have followed because of the business we do, then all the support industries that assist them, such as construction, have followed.

"Angolans who had left are coming back because they can see that this country is beginning to flourish. The burgeoning middle class is happening."

It is a far cry from 2002 and the end of a 27-year civil war in which more than 500,000 Angolans lost their lives. In the intervening years, society has been doing its best to catch up with other fast-growing African economies, such as Ghana and

“Oil has been a huge help to the country. If you look at Angola today, there are now 15 oil and gas operators here. They have brought in money, expertise, the need to rent houses, to buy cars; and it has all mushroomed.”

Martyn Morris



Nigeria. The streets are dominated by the ‘informal goods’ market – all sorts of people, selling all sorts of things – from cold water to sunglasses. Even the most common signs of capitalism, ranging from famous soccer team shirts and Coca-Cola stalls, have become familiar sights.

As Angola gets bigger, the world around it becomes smaller, as well. It would have been unthinkable 10 years ago to fly far afield from Luanda, yet nowadays you can jump on a plane direct to Houston or London.

The country has also seen an influx of foreign nationals, most notably a large Chinese community, which has invested heavily in the country’s infrastructure – helping to rebuild and maintain roads following the destruction caused by the war. This diversity is also boosted by a stable expatriate population, primarily in the capital, where hotels are routinely filled with a mix of nationalities.

With a changing population and strong foreign investment, Luanda has inevitably become one of the most expensive cities

in the world. A casual lunch can cost you more than \$100, and because a lot of the food in supermarkets is imported, the price is hiked. Even a coffee can set you back \$9 – a hefty price for a morning kick.

For all of this development in the city, outside Luanda, it feels like an entirely different country. Angola remains largely rural, dominated by rainforests to the east and desert land to the south, which stretch for hundreds of kilometres. Angola’s estimated 18 million inhabitants live in a country that is around five times the size of the UK. This is why communities are increasingly popping up close to the main roads – so that they are connected to the veins of the capital. Practically, all roads lead to Luanda.

If you take all of this as context, it is easy to see that Angola has undergone a metamorphosis in the past decade.

For BP, and its heritage company, Amoco, the challenge has been to play a role at the forefront of this transformation by helping to evolve an already fast-growing energy industry.

The latest step is the \$14 billion

Coastal city: Luanda’s (above left) skyline has changed dramatically in the 10 years since the end of the civil war, but this change, along with strong foreign investment, means it’s currently one of the most expensive cities in the world. Above, the PSVM floating, production, storage and offloading vessel is BP’s second operated development to come onstream.





Working life: (clockwise from above) BP staff at work in the company's Luanda office; aerial view onboard the PSVM floating, production, storage and offloading (FPSO) vessel; onboard BP's other operated FPSO, Greater Plutonio. The vessel came onstream in 2007; and at work on PSVM, which came onstream in December 2012 and is expected to produce 157,000 barrels of oil equivalent per day at its peak. BP's stake is 26.67%.



Plutão, Saturno, Vénus and Marte (PSVM) development, which began producing oil in December 2012 from Block 31. Named after planets, it is a project so complex that it could well be found on another world.

The four fields sit 180 kilometres (110 miles) from the Angolan coastline and are marked in the ocean by a hulking mass of steel – the PSVM floating, production, storage and offloading (FPSO) vessel. This asset acts as the hub of activity – a central point for collecting and offloading the oil onto tankers, as well as re-injecting gas and water into reservoirs to help stabilise them.

But it's beneath the waves where the project's true scale comes to life.

BP has built an underwater city on the seabed to extract the oil – the largest subsea development in the world to be exact, two kilometres (one mile) below the surface – the equivalent of stacking six Eiffel Towers on top of each other. Sitting down there is 77,000 tonnes of equipment, linking up the four fields, whose extremities lie 34 kilometres (21 miles) apart.

The net result of all of this is expected production of 157,000 barrels of oil equivalent per day at its peak, and BP's stake is 26.67%.

The man who managed the PSVM project, Gerry McGurk, says: "The significance of Block 31 is that it is the first ultra-deepwater block to be developed in Angola. For the past 10 years, there has been a lot of production coming from the deepwater Blocks 15, 17 and 18. They are technically defined as deep water, being around 1,600 metres [5,250 feet]. Not that long ago, that would have been remarkable in itself, but the industry has moved on.

"The big feature with these developments is that they all had a large oilfield effectively sitting under their floating, production system, which means less infrastructure per barrel and good projects. When we get to 31, the nature of the challenge is quite different, because we are going down to 2,000 metres [6,560 feet] for PSVM. It does not sound much, »

Vast operation: (main image) BP employee Dina Mendes (middle in light blue overalls) discusses PSVM's operations with visitors to the FPSO. Mendes joined BP as a Challenge graduate in 2006 and is now a member of the FPSO's management team (see page 25 for more). Opposite: a new liquefied natural gas plant in Soyo came online in June, providing an export route for the gas produced from Angola's fields. BP has a 13.6% shareholding in the plant.





“To get safety right, you need strong leadership, a capable workforce, control of your hazards and flawless execution. If you do all of this safely, production naturally comes with it.”

Fernando Guitart

those extra 400 metres [1,310 feet], but that is really quite a significant change in pressures and water depth and industry capability. In addition, the Block 31 fields are geographically dispersed and similar size, without a big ‘anchor’ field. This means we have to have extensive subsea facilities – pipeline and control systems – to string together these fields.”

In addition to the production of oil from this development, BP will soon be able to market the gas from these reservoirs, too. The new liquefied natural gas plant in Soyo in the far north of the country came online in June 2013, with BP holding a 13.6% shareholding. Pipelines carry back gas from BP’s producing fields to the facility, which will reduce and then cut the need to flare (burn off) the gas as it is removed from the reservoir. With global gas demand expected to grow by 2% per annum, it adds another string to the bow of a business that is firmly ramping up.

With such complex operations ongoing, BP has invested heavily to prepare for every eventuality in a country where logistics and infrastructure are inevitably some way behind the UK and US.

For instance, the company has a deepwater capping stack on hand in Luanda and stocks of dispersant are stored locally in case of oil spill. BP is also part of a global mutual aid agreement with fellow oil and gas companies.

Onboard the vessels, the need for systematic operating and rigorous safety

standards is paramount. Morris says: “The great thing about Angola is that the industry is relatively new. There is no baggage here. We don’t need to worry about changing people’s perceptions because they aren’t ingrained.

“We have created a real culture here where excellence in safety – both process and personal – is second nature. I truly believe we are as good as anybody in the company here, without any doubt, and I expect every one of the leaders here to take it as seriously as I do.”

BP’s vice president of operations, Fernando Guitart, who looks after both FPSOs, is one of those leaders. “To get safety right, you need strong leadership, a capable workforce, control of your hazards and flawless execution. If you do all of this safely, production naturally comes with it.”

BP’s other operated FPSO in the country, Greater Plutonio, is a good example of this combination. It is now delivering 200,000 barrels of oil per day (of which BP has a 50% stake) and is maturing into a high-class, high-margin asset. The team onboard is a mixture of different nationalities and BP staff and contractors, but Guitart feels it is the single-community attitude that pervades that has helped them to be successful.

“People see it as one team and don’t differentiate, which is great to see. It doesn’t matter if you’re Angolan, Portuguese, Scottish, English or whatever – you all contribute to the success of the operation. And success breeds success, being on a winning team energises everyone. When

we get good feedback and results on the vessel, we share it with the team and it acts as a positive reinforcement that drives even better results.”

So what of the future? Ironically, a BP discovery on the other side of the Atlantic Ocean could hold a clue. The successful flow test of the Itaipu-1A well in the Brazilian Campos basin was the latest in a string of discoveries for energy companies off the Atlantic coast of the South American country.

Although the Atlantic Ocean separates them by thousands of kilometres now, Brazil and Angola were once joined in the prehistoric supercontinent, Pangea (see *BP Magazine* Issue 1 2013 for more on tectonic plates), and the theory is that the offshore basins of Angola mirror the offshore basins of Brasil.

New concession blocks for exploration access in the ‘pre-salt’ Kwanza and Benguela basins were signed by BP in 2011, where the hydrocarbons are thought to lie beneath a thick layer of salt under the seabed.

Morris says: “We hope to start exploration drilling there in 2014. People are watching very carefully, because if these basins are anything like as good as the Brazilian ones, the oil industry in Angola is in for a superb future.

“We’ve already invested \$20 billion in Angola, and if the Kwanza-Benguela basins work out, we could be talking about \$10-15 billion in the next decade. This country is a huge part of BP’s future growth.”

IN CAPABLE HANDS

In a country where youth is in abundance, it seems obvious that education will play a defining role in determining Angola's long-term future. Yet, according to UNICEF, around 1 million children are not in primary education, while just 20% of 12-17-year-olds are in school. But, as Angola grows, so, too, does its demand for talent – which is why it's vital that companies such as BP are supporting education needs at all levels.





School days: BP spends around \$9 million every year on social investment in Angola. Along with its Block 18 partners, the company helped provide funding for this school. Sonangol's Block 18 chairwoman Francisca Lemos joins school children to celebrate the school's official opening. BP also runs technician training programmes to help develop the next generation of energy workers.

BP's communications and external affairs vice president for Angola, Paulo Pizarro, sees a country that is trying to catch up with demand: "In a little more than 10 years, we have come from being in a civil war, where the need for capability was low, to the country you see today, where the energy industry is beginning to thrive. There is a huge demand that accompanies that."

BP spends around \$9 million every year on social investment in the country, including new schools, childcare centres, and vocational and university programmes.

One such project, a new school that opened in April in the rural town of Camabatela, is a prime example of the benefits of such investment. The town is a 400-kilometre (250-mile) drive northeast of Luanda, surrounded by grassy plains and lush rainforest. As pleasant as the scenery sounds, the isolated location has meant that investment in infrastructure has been limited.

First of its kind

The new facility is the first school in the town, and was designed by a 22-year-old architect from the local area. Twelve classrooms with 48 desks each host almost 2,000 children per day in shifts, while accelerated learning programmes for adults are also on offer.

The demand for education in the town is so high from the students, that a new teachers' course is being run to train local people so that they can tutor the children.

BP's regional president for Angola, Martyn Morris, is well aware that enthusiasm is not in short supply. "The kids are so keen to learn. There is an

inherent intelligence in the people here. Capability exists – it just needs nurturing, because it is not rooted, yet."

Farther up the educational ladder, Morris is keen to further 'Angolanise' the teams responsible for BP's major operated assets in the region – the Great Plutonio and PSVM floating, production, storage and offloading (FPSO) vessels.

BP runs technician training programmes and scholarships to encourage the next generation of energy workers, believing it is in both the company's, and the country's, interests.

Morris says: "We know that the easiest way in the long term is to have Angolans doing these jobs, rather than recycling expatriates through on rotations, which is not sustainable. The first couple of years of these programmes, we had some good kids coming through, but the past few years we have had some fabulous kids coming through.

"There is a young man called Wilson who is out on the asset course that we run; he was the supervisor offshore on Greater Plutonio. He came out of school and went through the technician training. He has now worked for BP for 10 years. He is a star of the future, so we sent him on an asset course. Just watching him, a young man full of confidence, dealing with people who are a lot more experienced and older than him, it is truly gratifying."

The Greater Plutonio FPSO is now seen as a capability model for the oil industry in Angola. Nine of the 14 supervisors, half of the team leaders, and more than 70% of the technicians onboard are Angolans. This also serves as an important example for BP's latest FPSO in the country – PSVM.

Having only come online in December 2012, PSVM is staffed by a majority of expatriates at this stage, but has a core of Angolan staff on the management team.

The man in charge of the vessel, offshore installation manager Graeme Pirie, who has previously worked in the North Sea, says: "We are coaching Angolans to work ourselves out of a job. There are now technician and graduate programmes and the ability to fast track people, which helps."

Rising star

Dina Mendes is a great example of this. She began at BP in 2006 and is part of the company's Challenge programme, designed to develop graduate hires. She has gone from technician trainee, learning her craft in BP's Dimlington Terminal in the UK, to becoming a member of the management team onboard PSVM, all by the age of 28.

She says: "My career with BP has been quite exciting. I have worked in the UK, US and Angola to get to where I am. I felt very proud of myself when I was asked to join the team on PSVM, I knew that all of my hard work had paid off. I look forward to a long career in BP."

Martyn Morris is encouraged for the future: "This country has 18 million people in it and 60% of them are under 30. The resource is at hand. Therefore, to recruit the right people, we need to start at ground-level. You have to invest time and money, but if you are going to do it, you need to do it properly, in a really rigorous manner. That is what we are putting in place."

With decades of production life left in PSVM, and future concession blocks agreed, the need for more rising stars is apparent. ■

A DAY IN THE LIFE AT

HOUMA HELIPORT

The Houma-Terrebonne Airport sits around 80 kilometres (50 miles) southwest of New Orleans, Louisiana. Sandwiched between the Mississippi River to the north and the Gulf of Mexico to the south, it is an ideal location for the fleet of helicopters servicing BP's offshore facilities. The airport, just three metres (10 feet) above sea level, is home to the BP Gulf of Mexico aviation logistics team, which keeps the offshore facilities supplied with people and cargo 365 days a year. Around 12,000 people travel through the Houma BP heliport every month. *BP Magazine* went to visit to find out more about day-to-day life at the facility. The helicopters are operated by contractor PHI. The group flies three types of aircraft, an 18-passenger Sikorsky S-92, a 12-passenger Sikorsky S-76, and a six-passenger Eurocopter EC 135.



Early doors: S-92 hanger doors opening, prior to sunrise. In preparation for tow out of aircraft onto the flight line (main image). Inset: Captain Ken Johnson performing morning preflight checks on a Sikorsky S-76 aircraft.



3: 30 AM

The day-shift mechanics report for the start of their 12-hour shift. They have an extremely short commute to their jobs, since they live on airport property. During their seven-day tour, they stay in a small employee village of several mobile homes that are bunched at one end of the airport.

“Pre-flight time is a busy period. We get the aircraft ready to go,” says aviation mechanic Nathan Burrow.

4: 00 AM

The employees who work in the passenger terminal arrive for the day. This group staffs the check-in desks, the security gates and the ramp operations.

4: 12 AM

The terminal doors are still locked, but a few passengers are already waiting outside. Some have driven hundreds of kilometres, while others have flown to Louisiana the night before. The people who work the rigs and ships of the Gulf are at sea for an extended period. Some work tours of 28, 21, 14 or seven days, with a corresponding number of days off.

“They come from everywhere. Some from overseas, some from around the country, some are local,” says BP air operations supervisor Brian Verret. “Around 15-20% come from outside the US. They fly into New Orleans. We have British, Dutch, Norwegians, and Filipinos, along with many other nationalities.”

4: 30 AM

The doors open and around a dozen passengers walk in and start the check-in process.

“We have a computerised reservation system, just like an airline,” Verret says. >>>



Preflight checks: Captains Scott Fuller and Ken Johnson (main image) perform preflight checks on a Sikorsky S-76 aircraft prior to the day's activity. Opposite: Miriam Sampey (top) checks in passengers for the first flights of the day; helideck assistant Jean Himel (bottom left) carries out baggage checks prior to loading of the first flights; and after viewing the flight safety video briefing, BP's Ken Thompson (bottom right), and other passengers, put on life vests in preparation to board their flight to the Mad Dog production facility.

"They come in, they show their ID. They get checked in. Their bags get weighed, they get weighed. We also look over their credentials for their safety training. Any credentials required for offshore work are also checked."

After the check-in station, all those bound for the offshore facilities must go through security.

"Their bags are put through x-ray and then they go through the metal detector."

4: 37 AM

Only seven minutes have passed since the doors opened and one of the passengers, Van Williams, has already been checked in, gone through security and is sitting quietly in the waiting room.

He left his home in Shubuta, Mississippi, at around 11:30pm and drove some 385 kilometres (240 miles) to the airport. Williams works for Seadrill and is bound

for the semi-submersible drilling rig West Sirius – a 320-kilometre (200-mile) trip.

"The hardest thing is leaving home, leaving the family. It pays good money, but you miss a lot of birthdays and graduations and holidays," says Williams, who has worked offshore for 38 years.

5: 02 AM

Jeff Stethem is waiting for a flight to take him to West Capricorn. This is his first day on the job and, while he has never worked offshore, he has spent plenty of time in helicopters. He was a flight paramedic and fire department captain in Hillsboro, Ohio, before joining Seadrill. "I am looking forward to this new life," he says.

Stethem's journey to Houma began around 1,450 kilometres (900 miles) away with a flight from Cincinnati. He spent the night in New Orleans and drove to Houma in the pre-dawn hours. "I will commute

from Ohio, at least for a while."

"Maybe in about year, probably we will move to Texas. That will cut down on the commute. We are in no big hurry."

Stethem, who will work as a medic, underwent training for several weeks before being cleared for offshore work. "I have met some great people from all over the world," he says.

5: 20 AM

The waiting room begins to fill as passengers sit and wait for their flights. Wall-mounted televisions are carrying morning news programmes, but only a few are watching. Most just sit and look at their cell phones, checking email for the last time before heading out. Although there is a strong aroma of fresh-brewed coffee in the room, not many are drinking as there are no lavatories on the helicopters.



5: 36 AM

Guy Fruge, also a paramedic, has been working offshore for 18 years and is waiting for the call for Thunder Horse, a BP-operated platform. “We do all the clinical care for the people on the platform and on the rare occasion that you actually have an injury,” Fruge says. “Most of what we do is clinical medicine, taking care of the colds and the illnesses.”

Fruge says two weeks is a long time to be away from home, but adds that it is balanced by having two weeks off.

“Well, you get a two-week vacation every month. You work six months out of the year. A lot of people say they can’t be away from home that long. I raised two kids working offshore. Yeah, you are gone that two-week span, but your quality of time at home for two weeks is greatly improved,” he says.

5: 50 AM

The first group of 14, bound for the Ocean Saratoga drilling rig, is called to the briefing room. These small rooms are filled with chairs and are the last stop before boarding. Prior to entering the rooms, the passengers are checked again to ensure they have proper identification. In the briefing room, they watch a safety video and then each one puts on a life jacket and lines up for departure.

6: 00 AM

The Ocean Saratoga passengers file out of the briefing room and walk onto the Tarmac towards their aircraft, which carries the call sign, BP-1. Each group leaving the building walks in single file, led by a helideck assistant (HDA).

The regulations and practices concerning activity around the helicopters

are rigorously followed, says helicopter landing officer Corey Jenkins.

“BP has a lot of rules for the passengers to make sure nobody gets hurt. And the HDAs make sure everybody is doing everything correctly,” he says.

Lines painted across the Tarmac lead from the terminal to each aircraft and each group walks in its assigned path.

“There are reasons why the passengers only walk in designated areas. The pilots know to look for people there,” Jenkins says. “You approach the aircraft from a certain area and you depart from a certain side,” he says.

Another reason to approach the helicopter from the side rather than the front is that as the big rotors turn, they dip a little lower towards the ground at the front of the helicopter. The designated walking area is also free of trip hazards, such as tie-down rings and lighting fixtures.

The safety regulations also address other topics. Passengers are forbidden to have anything in their hands, such as cell phones, to avoid distractions, and Jenkins says BP wants everyone focused and paying attention when walking around helicopters. The prohibition also includes hats and other objects to prevent items from being blown into the air and then sucked into the jet engines.

“One of the leading causes of ground injuries around helicopters occurs when someone has something fly away from them. Your natural reaction is to go and grab it,” Jenkins says.

“Well, when you run to grab it, you can run into something you did not know was there, and that can be a disaster,” he says.

6: 03 AM

The waiting room speaker announces those bound for Atlantis – another BP-operated platform – are to come to the check-in desk.

6: 07 AM

The call goes out for Thunder Horse.

6: 21 AM

Those bound for the DS-3 drilling rig are called to their briefing room.





Right checks: a PHI Sikosky S-92 (above) prepares to taxi for its first flight of the day; helideck assistants Earnest Blanchard and Jean Himel (below) check and prepare baggage for loading onto aircraft for the first flight of the day. Opposite: passengers relaxing in the passenger waiting area prior to boarding aircraft.





“It’s the best job in the world. We run almost like a scheduled airline. It is very well organised. I can’t imagine an operation that runs smoother than this.”

David Maples – pilot

6: 24 AM

The waiting room that was once almost full with around 100 people is now occupied by only around 15.

6: 29 AM

The sound of helicopter engines slowly grows as the rotors of an S-76 begin to turn. The helicopter holding five passengers lifts off and heads out to the drilling rig Ocean Saratoga, a trip of 175 kilometres (109 miles) and the shortest journey of the day.

6: 35 AM

BP-5 takes off for drilling rig Enterprise. Over the next 30 minutes, the roar of engines will be a constant, as seven other aircraft take off, including a flight of one hour and 55 minutes to West Capricorn, which is 360 kilometres (225 miles) away, and the longest one-way trip made on the day.

7: 21 AM

Pilot David Maples, who lives in Covington, Louisiana, is in the staff lounge waiting for a later flight.

“It’s the best job in the world. We run almost like a scheduled airline. It is very well organised,” he says. “I can’t imagine an operation that runs smoother than this.”

Maples is piloting a Sikorsky S-92 and says they normally cruise at 1,525 metres

(5,000 feet) at a speed of around 155 knots. “One of the prettiest things I have ever seen is the sunrise over the Gulf of Mexico. I try and not take it for granted. There are no buildings or smog; it’s a pristine sunrise,” he says.

Maples says there is a surprising amount of activity offshore, both manmade and natural.

“Boats and helicopters, those are just the routine stuff. Sometimes, you see some crazy marine life. I have seen a whale right off the mouth of the Mississippi following a shrimp boat and I swear he was eating what was spilling out of the net.”

7: 40 AM

Passengers who will be leaving in the second wave of flights begin to arrive at the terminal and the check-in and security process begins again.

7: 48 AM

BP-3 arrives at the airport, the first aircraft to complete a round-trip.

8: 43 AM

BP-31 departs for the VK900A platform, some 196 kilometres (122 miles) away, on a pipeline maintenance mission. This is the last flight of the first wave of morning departures.

9: 10 AM

The waiting room begins to fill again, as the second-wave passengers wait for their flights. This group is a little more active than the first and several chat or grab a snack from one of the vending machines.

10: 07 AM

Jamie Savoie, is in the second wave and is one of the few workers who will not be spending an extended period of time at sea. He is a communications tech for Paratech and does not work a fixed tour but, instead, flies out for specific jobs.

“I love it. I can relate this kind of life to my Marine Corps experience, the structure, the leadership,” he says.

Savoie says that in addition to the structure, he also appreciates the code of ethics and the safety culture that is part of working offshore.

“I attended some 60 training classes before I was even able to go out for BP. They are very strong on their safety.”

10: 16 AM

A lull between the waves of flights gives the staff a chance to relax a little and get ready for the next group of passengers.

Janine Caillouet started as an HDA, but last year became a counter clerk.

“I am getting old, I don’t want to sling 50-pound bags anymore,” she says.





“I love it. I can relate this kind of life to my Marine Corps experience, the structure, the leadership. I attended some 60 training classes before I was even able to go out for BP. They are very strong on their safety.”

Jamie Savoie – communications tech, Paratech

10: 20 AM

During the course of the next 30 minutes, seven helicopters take off in the second wave.

12: 56 PM

The blades of one of the helicopters come to a slow stop and eight passengers climb out. A few seconds later, they enter the baggage area and pick up their belongings. One of them is Matt Ogden of Hattiesburg, Mississippi. He still has a three-hour drive ahead of him and is anxious to get on the road.

“After 21 days, it is pure heaven when that helicopter lands on that Tarmac,” he says.

3: 30 PM

The mechanics start their afternoon maintenance while the aircraft are still parked on the flight line.

4: 06 PM

BP-8 lands, after flying 1,763 kilometres (1,096 miles) on the day’s operations – the most ground covered by any helicopter.

5: 05 PM

BP-2 was the first aircraft to take off in the morning and is now the last one to land, after flying 1,715 kilometres (1,066 miles), the equivalent of a round-trip between London and Bordeaux.

The fleet of 11 helicopters flew a total of 57 hours and 10 minutes and transported 597 people a distance of 14,477 kilometres (8,996 miles) on this day.

5: 10 PM

Mechanics begin washing each helicopter. They also pump water through the engines to rinse out any salt that was ingested through the air intake. This flushing helps prevent corrosion, explains Brian Verret.

6 PM

The mechanics begin towing each helicopter into the hangars, where a nightly round of maintenance is performed, including any engine or transmission maintenance that is required.

4: 30 AM

The doors open and the day’s process starts all over again. ■

Flight plan: passengers are escorted to an awaiting S-92 for their flight out to the Gulf of Mexico (left); PHI flight coordinator, Lionel Galvan (far left). Main image: PHI A&P mechanics Chan Benoit and Stuart Dorman, along with other maintenance personnel, wash aircraft after the day's flight activity in preparation for nightly routine maintenance.





Report> Martin Thomas
Photography> Mehmet Binay

In the field: staff from across the three partner companies all work together in the Rumaila Operating Organisation to help breathe new life into the giant field. There are plans to develop the existing camp into a world-class office and accommodation complex.

A UNITED EFFORT

Since the creation of the Rumaila Operating Organisation in 2009, BP and its partners, PetroChina, South Oil Company and State Oil Marketing Organisation, have lifted Iraq's Rumaila field to second place in the global super league of giant oilfields. *BP Magazine* talks to some of those involved to find out how they've achieved this and what's next for the team.

Decades of conflict have left their mark on every aspect of life in oil-rich Basra, Iraq's second-largest city and its sole access point to the sea. However, in recent years, signs of recovery have slowly started to appear. New buildings, sports facilities, roads and bridges are being constructed and, more importantly, many international oil companies are now active in the nearby oilfields. People are starting to recall Basra's glory days of the 1960s and 1970s and wondering if there might be another golden period on the horizon.

Michael Townshend, BP's regional president for Iraq, presents a vivid picture of those days: "For many Iraqis, Basra signifies the beautiful date plantations they used to have in the 1950s. There were beautiful hotels on the Shatt-Al-Arab waterway. There would be waiters in white gloves serving tea, boat trips, the cricket ground. The pictures of Basra from back then show it was a stunning place – a little paradise. That's what many people living in Basra remember."

To rebuild Basra and the rest of Iraq, the Iraqi Government knew that production at the country's main oilfields needed to be radically increased – oil sales account for around 95% of government revenues. In January 2008, more than 30 years after Saddam Hussein nationalised the oil industry, the Iraqi Ministry of Oil announced the highly-anticipated First Iraqi Petroleum Licensing Round. The bid round began on 30 June 2009 and resulted in just one licence being awarded – to BP and its partner, PetroChina. The partners teamed up with Iraq's South Oil Company (SOC) and State Oil Marketing Organisation (SOMO) to breathe new life into the Rumaila field, one of the largest in the world, 50 kilometres (30 miles) to the west of Basra.

In November of that year, the partners signed a 20-year technical services contract and the Rumaila Operating Organisation (Rumaila) was created, with the aim of increasing production from what was then around 1 million barrels per day. The gains already made have lifted Rumaila to second place in the global super league of giant oilfields, with only Saudi Arabia's Ghawar field above it.

Sixty years after its discovery by BP, Rumaila still contains around 17 billion barrels of recoverable oil – that's about 12% of Iraq's total proven reserves. It also forms an essential part of the country's ambitions to generate long-term prosperity

and improve standards of living for its citizens by developing its energy sector.

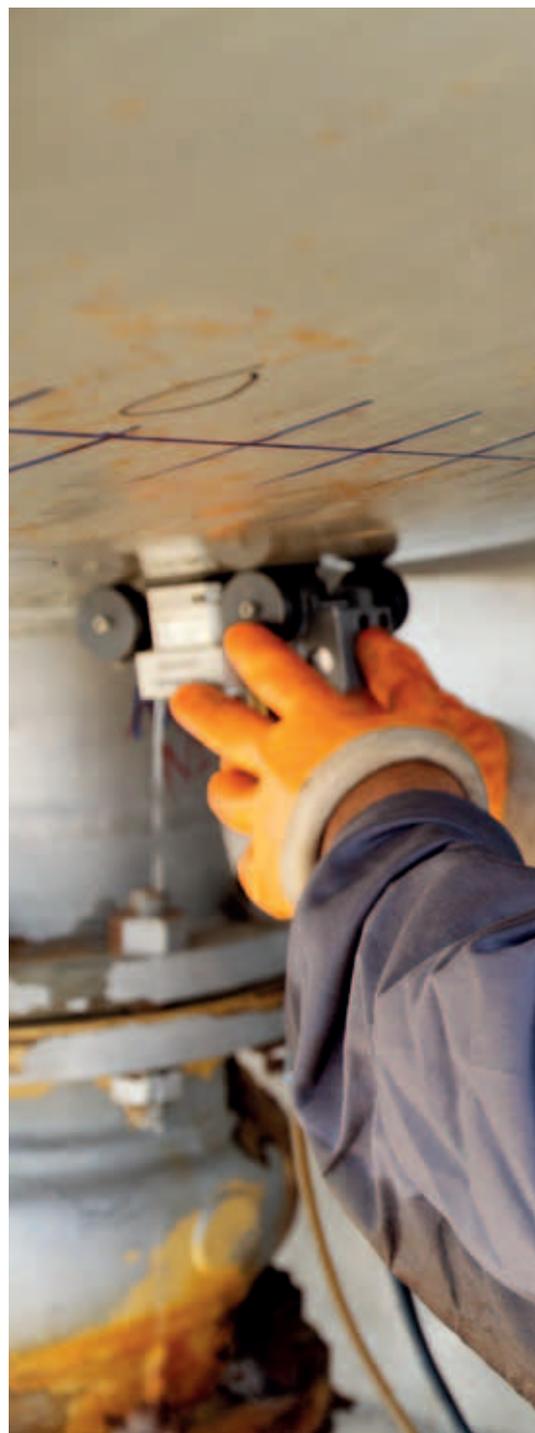
The four Rumaila partners have already increased production at the oilfield by around 400,000 barrels of oil per day in the past three years. And Rumaila is still nowhere near its full production capacity.

BP and its partners have drilled more than 100 new wells, each one of which is now producing an average of around 7,000 barrels per day. In December 2012, production hit a peak of 1,437,000 barrels a day – the highest production rate since the 1980s. That month also marked the highest monthly average production rate – 1,405,000 barrels a day – since the discovery of Rumaila.

Marc Hornbrook, Rumaila's general manager and head of operations in Iraq, puts that number in perspective: "The production we've added over the past three years was in a declining field, where wells weren't being drilled and there was a lack of development. That increased production figure of 400,000 barrels is more than the total output of any field I've ever worked on, except Prudhoe Bay in Alaska, and it's »

"[Our] increased production figure of 400,000 barrels is more than the total output of any field I've ever worked on, except Prudhoe Bay in Alaska."

Marc Hornbrook



Work programme: the Rumaila team has carried out a series of major projects, including an eight-month seismic survey covering 1,812 square kilometres (700 square miles). The survey has helped plan new wells safely and given the team a better understanding of reservoir performance.





“We also want to have an international standard control of work system in place by the end of the year and I think we’re in good shape to deliver that. We’re starting to put resources into environmental remediation, too.”

Marc Hornbrook

generated billions of dollars of revenue for the Iraqi Government.”

There’s a lot more to making a success of Rumaila than drilling new wells. Under the terms of the technical services contract, BP and PetroChina agreed to fund one of the world’s largest infrastructure projects, to build capacity to cope with the huge growth in production.

The Rumaila team embarked on a series of major projects, including an eight-month seismic survey over an area of 1,812 square kilometres (700 square miles). The survey – conducted without a single recordable injury – helped the partners to plan new wells safely and gave them a better understanding of reservoir performance.

Risk mitigation

Meanwhile, the largest commercial unexploded ordnance risk mitigation project in the world was under way, removing tens of thousands of potentially lethal devices from the field, left behind from the wars over the previous three decades.

Townshend says unexploded ordnance (UXO) quickly becomes an accepted fact of life in Rumaila: “There are many remnants of war; one minefield close to our headquarters contains around 100,000 mines. When we cleared the one square kilometre site for our building, we found more than 3,000 pieces of UXO. Clearing

the area will take a long time. We’ve identified where the risks lie and the idea is to avoid them, rather than trying to clear everything immediately. You just don’t go off road here – it’s a simple reality of life.”

Another sign of progress is the building work that’s still under way on the headquarters and workers’ accommodation. Townshend says: “When we first arrived, there were four of us and we lived, essentially, in bunkers in the US military contingency operating base at Basra International Airport. It was like a mini-prison – very well protected, but Iraqis couldn’t come in and we were too far from the field. We need to live and work together, so we chose a plot of land in the desert for our headquarters; we put up a wall around it and started building.”

The initial starter camp accommodating 60 people opened for business in July 2010 and the first phase of development was completed in February 2012. Temporary units have been added steadily ever since and the camp now has extensive office space and living accommodation. Even though the camp is already described by Ian McGregor, Rumaila’s project manager for infrastructure and developments, as being “by far the best in southern Iraq”, there are plans to transform it into a world-class office and accommodation complex. McGregor says: “It will be stunning, with shops, leisure facilities, a mosque.

Everything you would expect to find in a state-of-the-art, modern facility.”

Improving safety is another big priority for the partners. This was as daunting as it was essential, as Hornbrook recalls: “In 2009, my first impressions were of aged equipment and working practices that did not reflect modern international standards. I remember seeing a welder working in a traditional robe and sandals, without gloves or fire-resistant clothing. He had no visor, so he was shading his eyes with his hand.”

Site visits

The decades of conflict meant Rumaila’s safety culture had fallen behind accepted international standards. Amir Shah, crisis and emergency response manager, is one of 26 leaders taking part in a programme of regular safety site visits across the oilfield, using a set of safety conformance checklists built around BP’s eight golden rules of safety.

Shah says: “The main objective at Rumaila used to be keeping the plant going 24/7. Safety was a secondary consideration. There was also some scepticism when we started out, but it disappeared once people realised we’re not there to criticise them. They understood that all we wanted was for everyone to do their job safely and then go home to their families.”

The progress that’s been made at Rumaila is impressive by any measure, but there are unique factors here that take it into the realms of the truly remarkable. One of the most crucial is how the three partners found a way to work together so effectively – and safely – despite the fundamental differences between them. These were three different companies,



Well executed: BP and its partners have drilled more than 100 new wells, each one of which is now producing an average of around 7,000 barrels per day. In December 2012, production hit a peak of 1,437,000 barrels a day – the highest production rate since the 1980s.

speaking three different languages, with three quite distinct business cultures.

Hornbrook says: “We have brought three cultures together into one team. We each bring something very important to the table.

“The Iraqis bring their experience and knowledge of how to run a mature oilfield with ageing equipment with no easy fixes. If something broke, they couldn’t ship in a new part, they had to manufacture it or modify the old one. We operate equipment, such as turbines, compressors and pumps, that was built in the early 1950s and it has been kept running by a resourceful and innovative workforce.

“PetroChina brings technical expertise and capable contractors to the table. Pipeline construction, drilling rig and tank building companies all contribute to our success.

“BP is the lead contractor and we bring leadership, vision, and processes. We bring the technology and know-how that’s needed to run and redevelop a major oilfield.”

There’s always more to do, but Hornbrook is undaunted by the scale of the challenge: “You have to look back over the three years to realise how far we’ve come. It’s important to keep looking forward, but we must remind ourselves of what has been accomplished to date.”

Hornbrook is clear about the priorities for 2013 and beyond. “This year, we’re looking to meet our production targets of 1.45 million barrels a day,” he says. “That’s an increase of 100,000 barrels a day over 2012.

“We also want to have an international standard control of work system in place by the end of the year and I think we’re in good shape to deliver that. We’re starting to put resources into environmental remediation,

too. There’s an enormous amount of historic damage from spills during the war, poor integrity of infrastructure and poor practices dating back to the 1950s.

“The other big priority is to localise the organisation, as right now, the senior leadership team is mainly expatriates. We want to develop Iraqis and give them jobs of responsibility, so this year marks the beginning of a drive to do that.”

Infrastructure focus

Looking farther ahead, Hornbrook says the push to increase production will continue, with targets of 100,000 barrels per day increases for each of the next three years. Beyond that, the focus will move to Rumaila’s infrastructure. “We’re planning to replace the equipment here, much of which is 60 years old, with new, state-of-the-art production facilities,” he says. “There’s a five-to-15-year window to redevelop the entire field, by which time we hope it will be a purely Iraqi enterprise, with just a little overseas support.”

Reflecting on the past three-and-a-half years, Townshend says BP and its partners have come a long way: “When we arrived, people just didn’t have the tools to do the job. There wasn’t a single computer anywhere on the site – everything was done on paper. There were no signs, no safety equipment, no seat belts; all the things you’d take for granted anywhere else. But what they did have was enormous experience. Many of their fathers and grandfathers had worked at Rumaila and they had this astonishing ability to make things happen without tools or outside help. Their pride and resourcefulness

got them through – in fact they did a fabulous job.

“It was all a bit overwhelming to begin with and there was definitely a bit of trepidation, but I think that’s a good thing. We had many worries and concerns and wanted to do the right thing. We worried about how the Iraqis would feel about us suggesting new ways of doing things. We didn’t want to come across as a bunch of arrogant foreigners. I’m not sure we got it right all the time, but we’ve tried to be really simple about what we’re aiming to achieve. You’ve got to prioritise – one step at a time. It’s a fantastic field. There was so much we could do there to make a difference.

“Ultimately, our aim in Iraq is to make Basra better. It would be arrogant to say we’re there to make Iraq better – that’s for the Government of Iraq – but what we can do is make Basra better by improving things for the workers around Rumaila and if that spilled over to the wider-area that would be tremendous.” ■

“We’ve tried to be really simple about what we’re aiming to achieve. You’ve got to prioritise – one step at a time. It’s a fantastic field. There was so much we could do there to make a difference.”

Michael Townshend



Commanding performance

The weather held out for ballet fans visiting London's Trafalgar Square in June 2013. The crowd was treated to a live relay performance from the Royal Opera House of Kenneth MacMillan's dark ballet, *Mayerling*. The performance, the first of this year's BP Big Screens events, featured Royal Ballet principals, Edward Watson, Mara Galeazzi and Sarah Lamb, and was beamed live from the Covent Garden venue to 22 locations throughout the UK. BP has been a supporter of the Royal Opera House since 1989 and has supported the BP Big Screens live relays since 2000. Last year, the company announced its commitment to a further five years of sponsorship. As well as *Mayerling*, opera fans had the chance to enjoy performances of Puccini's *La rondine* and *Tosca* during July. The BP Big Screens programme is designed to connect people and communities across the UK with the highest-quality opera and ballet for free and, according to BP's UK director for arts and culture, Des Violaris, lies "at the core of BP's relationship with the Royal Opera House. Every year, we see more and more people engage with the BP Big Screens, enjoying these regular events with friends and family who haven't previously had an opportunity to experience these art forms." ■



→ downstream

UK > Fuel deliveries



Loading up: Jeremy Gibbs attaches the 'Skully' earthing device to his tanker, prior to loading fuel. This removes the risk of static accumulation.



IN SAFE HANDS

BP's fuel tanker drivers undergo rigorous and regular training to ensure that they keep themselves, the public and their precious cargo safe as they travel up and down the UK delivering to service stations. *BP Magazine* spent the day with one such driver – Jeremy Gibbs – to learn more about the job.

T

he tanker is a brute of a vehicle. Standing 3.4 metres (11 feet) tall and 15.5 metres (50 feet) in length, it looks large and powerful, but reveals its grace as it moves smoothly to its destination.

It's a surprisingly even ride along the UK motorway, considering we're driving a virtual tank – this vehicle weighs around 44 tonnes, while loaded with 37,000 litres of fluid. But the sleek ride is thanks not only to the design of the vehicle, with its air seats and suspension, but also to the experience and training of BP tanker driver Jeremy Gibbs.

I've joined him on one of his fuel deliveries as a passenger, or 'crewman', in the middle of a four-day shift. BP has its own fleet of 289 tanker drivers, with an extensive list of inhouse training courses, both to keep existing staff updated and to train those who are new to the fuel tanker driver profession.

"The public should be assured that our drivers are experienced, properly trained and know how to react in the event of an emergency situation," says Jeff Tallis, BP driver trainer. "They are professional people."

And as well as moving 'liquid gold', Gibbs also transported actual gold in September 2012, when he led the floats during the British Olympic Association's Heroes Parade in London. Around 22 BP fuel tanker drivers carried up to 800 Team GB Olympic and Paralympic athletes. Gibbs had double Olympic gold medallist Mo Farah on his trailer.

But more of that later – there's fuel to deliver. Before I could get in the cab with Gibbs, I had to pass security checks and attain the level of 'crewman' – a term specified by legislation. In fact, the typical fuel tanker driver is indeed male, average age 45 years, but Tallis, who conducts my

training, assures me the company has had and welcomes female drivers.

Tallis is a self-confessed trucking enthusiast whose job is his passion. A driver is at the peak of his or her career when driving a fuel tanker, he says. "I don't think the public generally appreciate the professionalism and the skills required to drive a heavy goods vehicle."

A crewman requires sound knowledge of the UK laws governing fuel deliveries and the European agreement on the international carriage of dangerous goods (ADR). This means I need to understand the vehicle and its equipment, such as eye rinsing liquid, and know how to read a Hazchem plate (see top image on page 49). Used in Australia, Malaysia, New Zealand and the UK for vehicles transporting hazardous substances, this plate quickly gives the fire brigade vital information of the load and, crucially, the right way to tackle any incident.



On the road: (top) ever-observant, Jeremy carries out driving duties using techniques in defensive driving; (bottom) at the service station, he completes delivery paperwork with the station's 'competent person'; and (opposite) Jeremy enters the loading volume and product into the pre-set loading meter.



“A lot of the training the company provides can be applied to my driving outside work, so I can lessen the financial burden on myself by using less diesel and less impact on the brakes and gear box.”

Jeremy Gibbs

Essentially, crewman training underlines the hazards of driving a fuel tanker. One fact sticks out from the rest: the risk of fire and explosion does not disappear when the tanker is empty. Tanks are more volatile when empty because it's the vapour, not the fuel, that burns.

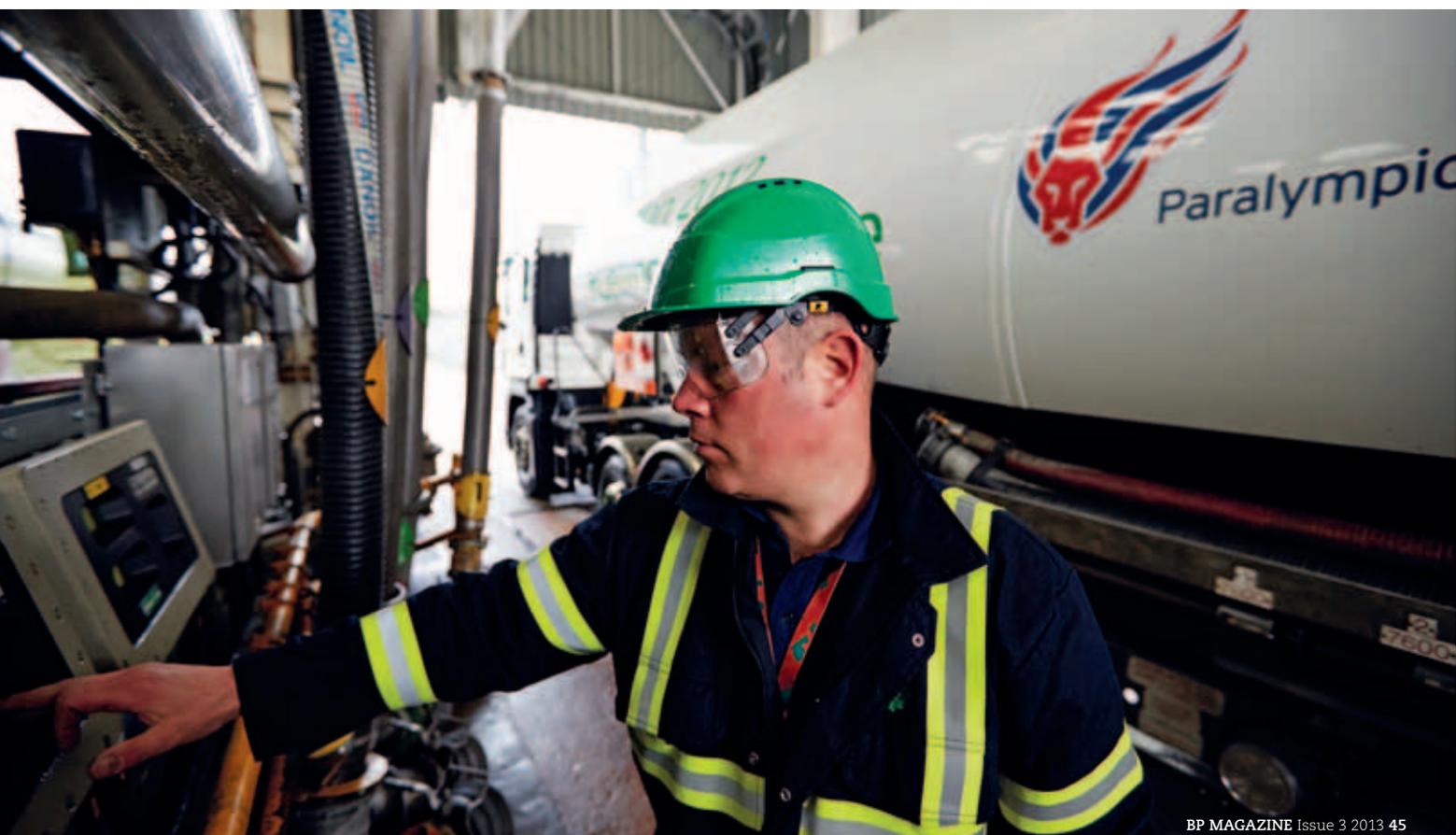
The job of a tanker driver is well rewarded, but it carries key responsibilities and the rules must be adhered to. For example, the carrying of a mobile phone would be deemed an act of gross misconduct, as the equipment has the potential to cause a spark that can ignite vapour. And the entry bar is set high, with an intense training programme awaiting new recruits (see page 46 for more on driver training).

Once the crewman training is complete, I join Gibbs, who has driven fuel tankers for 10 years, in his laden truck and head to the Chicheley Park Simply Food Connect,

Newport Pagnell, Buckinghamshire. Drivers are expected to drive as economically as possible and avoid any harsh braking or revving of the engine (see page 49 for more on using technology to drive more efficiently).

On the way to our delivery, he explains his measured driving style and the features of the vehicle: “I've found that a lot of the training the company provides can be applied to my driving outside work, so I can lessen the financial burden on myself by using less diesel and less impact on the brakes and gear box. I encourage my family and friends to apply it, too – although picking people up on their driving does not make me popular!”

The service station we're travelling to is familiar to Gibbs. Each station has been risk assessed and drivers have access to written instructions that detail the area to cone off during the delivery and pictures »



DRIVER TRAINING AND SAFETY

“We want our drivers to be the most highly skilled in their profession. And, we want members of the public to have assurance that BP is doing its utmost to ensure that not only our drivers are safe, but they are safe,” says Adrian Brooks, BP transport manager.

Brooks has to deal with many challenges in serving the market’s fuel requirements, but assures me that only drivers who meet BP’s high standards will be allowed to drive a BP road tanker on the public highways. “I will not allow any driver to drive one of my trucks without full assurance and paperwork on training. I will not cut corners and if the person does not achieve a high level of competence, then I will not give them the benefit of the doubt. It’s not worth the risk.”

New UK industry minimum standards have been drawn up and are set to come into force in 2013. But, BP already has its own safety standards for its 289 drivers that go beyond what is required by law.

UK legislation demands that you need to hold two licences to drive a tanker – HGV and ADR – and from September, a Driver Certificate of Professional Competence (CPC) will also be needed, renewed every five years.

On top of that, BP requires any prospective driver to pass an interview and a driving assessment to ascertain if they have the competencies to drive a vehicle defensively and safely. They will then have to sit a theory course, followed by 10 hours of vehicle and trailer equipment training, before being given a driver coach, who will mentor them for a minimum of three weeks before they go out alone.

BP drivers are assessed yearly and have regular anti-skid and rollover awareness training, which means making sure they have the knowledge to understand how a vehicle rollover could happen and how to stop it ever happening in the first place.

“Tanker rollovers are always a concern in this industry. You’re carrying fluid,

which is a moving load. As you go left, the product goes right,” says Brooks. “You have to know how to handle that.”

The trucks are equipped with an alert, which provides an early indication that a rollover is possible, if the centre of gravity has shifted to a degree meaning rollover is possible.

If an alert is activated, then this is identified back at the control centre, where and if required steps to provide the driver with additional training can be taken (see page 49 for more).

Brooks says: “Even while in bed, a tanker driver is under regulation,” referring to the strict European Union drivers’ hours regulations, which say tanker drivers cannot drive for more than nine hours in a day, and have to rest for 11 hours before driving again.

Also required is an induction into the fuel terminal, where products such as gasoline and diesel are received via pipelines, ships or rail and loaded into tankers for distribution to retail stations.

All drivers are completely responsible for the vehicle, meaning identifying and acting on repairs, and loading and unloading with fuel. There is a formal ‘pass out’ ceremony for those successfully loading the trailer with fuel three times under supervision.

In comparison, driving a heavy goods vehicle (HGV) transporting food or clothing might only require a HGV licence and to pass a one-hour driving assessment with no minimum vehicle or equipment training required.

The ongoing training involves anti-fatigue (BP’s shifts were tested and validated by Loughborough University to ensure that they do not have an impact on wakefulness), a four-day defensive driving programme annually, and training in slow manoeuvring, which is about reducing the risk on a busy forecourt by instructing drivers to use mirrors properly and to anticipate what could enter their blind spots.

Looking to lower-probability, but potentially high-impact risks, there is a procedure to avoid conflict should a member of the public for any reason confront a driver.

Tallis says the training is expensive, but worth it. “Our drivers are rewarded highly because they are doing a high-risk job and they have to be ultimately professional and responsible.”

Some of the UK training on rollovers and slow manoeuvring has been exported to help boost driving safety around the BP world.

Driving safety is one of the biggest risks the company faces in its global operations – not just with petrol tankers in the fuels value chain. It has drivers – inhouse or contractor – across the globe in locations such as Australia, China, India, South Africa and Turkey, who drive not only fuel tankers, but also heavy goods vehicles, cars and motorcycles, collectively driving 500 million kilometres (310 million miles) a year, equal to driving more than 12,500 times around Earth.

The company is determined to drive down the number of accidents through a tougher focus on the cause of accidents, with training on fatigue awareness, for example.

Albert Ploeg, the technical authority for driving safety, who acts as the facilitator of the newly-formed driving safety steering team, says: “We want to improve our performance and one way to do that is to raise the awareness of the risks involved in driving. We see alertness as a big contributing factor to accidents and driver distraction is also a key topic, so we’re doing some work on attention.”

The driving safety steering team also supports the introduction of the new Refining and Marketing business’s driving safety practice, which is replacing a number of recommendations into mandatory requirements and reinforcing basic rules, such as wearing seat belts and not using a mobile phone, to all its drivers across the world.

As well as anti-fatigue and defensive driving training for drivers, the rules also include technical measures, such as the use of vehicle data recorders in all vehicles (see page 33) to monitor driving to enforce good driving practice.

“We want our drivers to be the most highly skilled in their profession. And we want members of the public to have assurance that BP is doing its utmost to ensure that not only our drivers are safe, but they are safe.”

Adrian Brooks

Daily operations: Jeremy discharges the fuel in his tanker into the service station's storage tank.





TANKER VEHICLE GLOSSARY

Baffles – the dividers that separate the six sections of the tanker

Slack pots – not carrying the optimum amount of fuel

Super singles – the name for the wheels on a fuel tanker

Bill of loading – the document each driver has to carry specifying the tanker's load

» to help them position the tanker correctly. We arrive at the site on a busy Thursday lunchtime, and we wait. Drivers may need to wait until the forecourt is clear before they can move the tanker into position for delivery.

Jeremy is alert to opportunities to cone off an area near the manholes where we need to make our delivery. He's also mindful of how his actions could affect customers. He explains: "Coning off too much of the area can cause a hazard, because people will then park all over the place, causing congestion onsite."

Once the tanker is in position, Jeremy uses the hoses (which remind me of the arms of Spider-Man villain Otto Octavius) to carry the fuel to the underground tanks.

It's a physically demanding job lifting the hoses from the tanker to the manholes, but it also requires concentration to make sure the right product goes to the right storage tank. Any fuel crossover – putting gasoline into a diesel tank – can result in damage to a motorist's car, a compensation claim and harm the company's reputation.

"You are constantly checking and must never get complacent," Jeremy says. He has never had a crossover. "If you follow procedure, then you should never have any problem with a crossover – that's what's frowned upon by the company, because there are three or four checks you should do before letting the product go – even if it means talking to yourself, which I do!"

Once all the product is delivered, there is paperwork to sign and information to capture in the hand-held computer, which synchronizes with the BP computer system. Before moving off, Gibbs makes his final checks. "You have to visualise all four corners of the vehicle, you have to take in a lot of information on a busy forecourt. You have to be aware of how the large mirrors, which give you as much vision of the rear as possible, can help but can, themselves, act as blind spots."

Today is a normal day for Gibbs, unlike the one in September 2012, when he led the parade. He carried a lot of fuel deliveries for the Olympics, helping BP meet its commitment as official oil and

gas partner to fuelling the Games with 17 million litres (3.8 million gallons) of fuel over 60 days.

"For me, it was a great day. The crowds were unbelievable. You just couldn't believe the noise and the size. There was a sea of people in front of you.

"Along with the birth of my two children, that was in my top three moments of my life. I try to work the best I can and go the extra mile and, then, to get that recognition from BP was truly amazing."

As well as gaining satisfaction in the job, drivers like Gibbs have plenty of options to progress in their careers. Transport manager Adrian Brooks and trainer Tallis are both driver veterans who have moved to senior office roles.

We're back at the terminal and my time in the truck has come to an end.

As I step down from the cab, I realise how much I've learned about the skills needed to do this job. It may not be for me, but I'll never look at a tanker or its driver in quite the same way again. ■

Facts and figures – UK

289

Number of BP tanker drivers

140

Number of BP fuel tankers

450

million litres
Amount of fuel delivered every month

5.5

billion litres
Amount of fuel delivered every year

156,000

Number of deliveries per year

THE TECHNOLOGY DRIVING SAFETY AND ENVIRONMENTAL MANAGEMENT

BP has pioneered the use of technology to monitor the safe driving of each of its UK fleet of 140 fuel tankers. Each vehicle is fitted with a telematics system, which records and relays information on driving style back to the base.

The telematics feeds from the truck language, taking readings from engine management system, which records harsh braking, rapid acceleration and any indication that the truck wheels have left the ground even momentarily – a sign of a potential vehicle rollover.

The system also has an environmental focus, with each driver encouraged to drive economically – saving diesel while delivering it – by keeping the momentum of the vehicle going, whether moving forwards or left and right. Vehicles can be monitored in real time and the system can pinpoint on a map where any incident happened, so it can be fully investigated with the driver.

Transport manager Brooks says: “It will tell us a lot about what is happening out on the road and we will then have a conversation to find out what happened. We do a training needs analysis sheet every week to see if the driver needs further training. We want to keep our drivers at that top level.”

Wayne Park oversaw the implementation of the system, as BP’s fuels value chain UK secondary transport manager, and says: “It showed significant improvement in driving performance and road incidents decreased over the period of implementation.”

The system also has a bearing on reward – as drivers are incentivised to drive efficiently and safely. Park says: “In my experience, this programme is unique in the way we are rewarding drivers, it strikes a balance between safe driving and driving the truck efficiently. Drivers are then rewarded with the benefits they create.”



Forecourt delivery: good customer relationships are key. Left, Jeremy fills out his delivery paperwork with the assistance of the station’s competent person; above, Jeremy cones off a safe delivery area, as described in the delivery risk assessment. The Hazchem panel – the orange rectangle – is clearly visible on the rear of the tanker; and right, Jeremy connects the vapour recovery hose at the service station.



22
million kilometres
Distance driven every year
(13.6 million miles)

9,703
Number of cars supported by a single delivery (based on average daily consumption per car)

3
Number of days on average a BP site receives a delivery

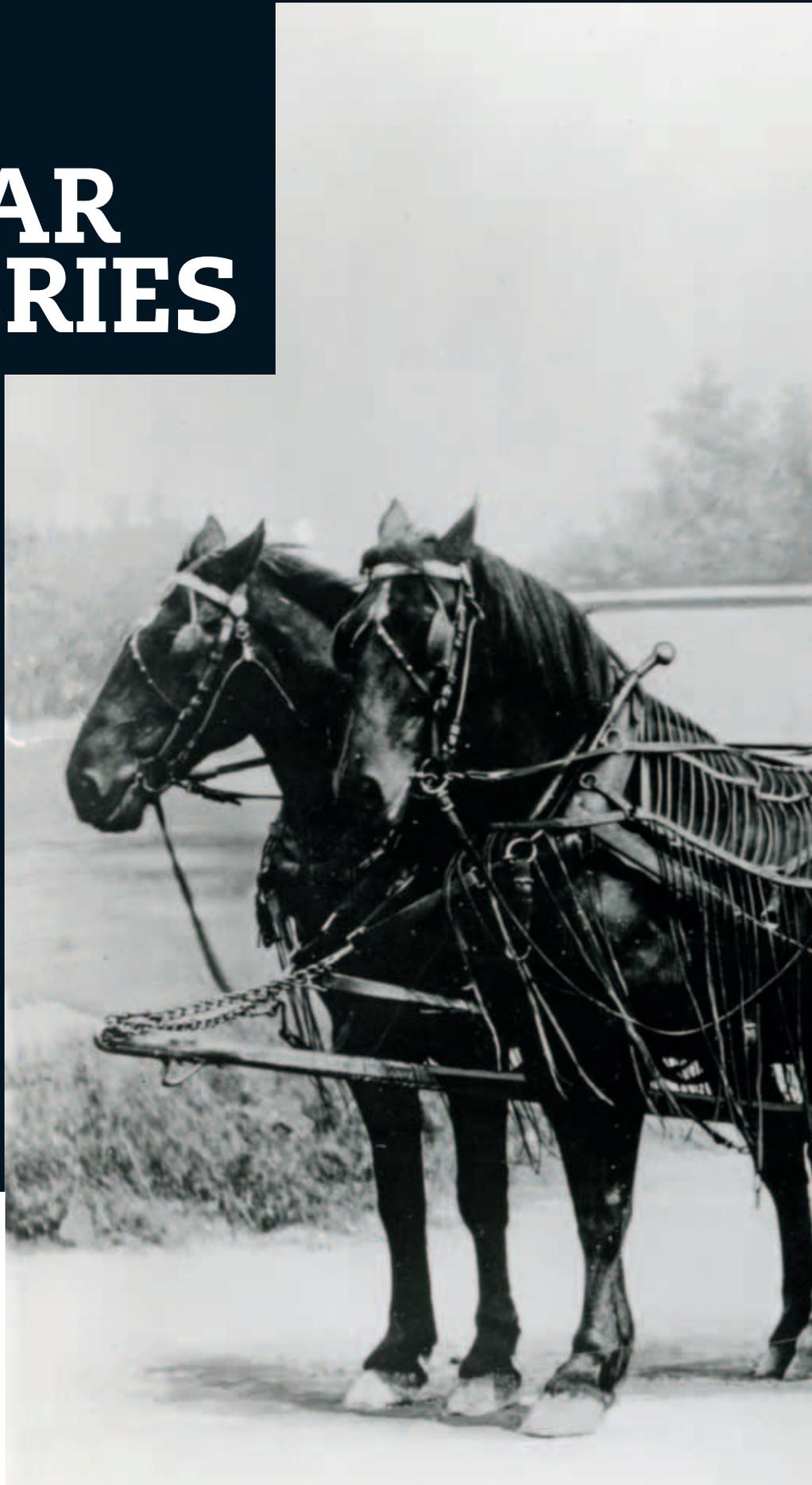
29
Number of return trips to the moon you would have to make to match BP’s annual tanker mileage

REGULAR DELIVERIES

Ever since oil was discovered, we've needed a means to transport it to the customer and, as this archive shows, that means of transport has changed somewhat in the past century.



Main image: in the days before motorised vehicles were commonplace, you'd often find your fuel being delivered by horse. This particular animal worked for Standard Oil – one of BP's heritage companies – in the US during the 1920s. **Above:** an early example of a motor-driven delivery wagon. The text on the photograph suggests it was taken in 1928. The tank is emblazoned with BP logos and urges customers to 'Be British. Buy British goods!'







Top: another horse-drawn delivery, circa 1900, this time delivering finest American lamp oils. **Left:** after horses, the company began using steam wagons, like this one from the 1920s, to deliver bulk amounts of fuel. **Above:** an early delivery wagon owned by the British Petroleum Company, which was bought by the Anglo-Persian Oil Company (APOC) in 1917. Later, APOC would market all its fuels under the BP banner and eventually change the company's name, as well.



Top left: It's not just fuels that need delivering. Here, a Castrol van and its driver in Llanfyllin, Wales, 1935. To the left of the van stands a Castrol oil dispenser. **Top right:** if you were living in certain parts of the US in the 1930s, you might spot a Standard Oil road tanker like this one. **Left:** a BP road tanker in the US during the 1970s, complete with tinsel and shamrocks. **Below left:** a 1970s BP road tanker weaves its way through the Swiss mountains. **Below:** a road tanker travelling through Scotland, 1995.



Family affair

Photographer Richard Davies captured an award-winning artist and her work at the announcement of the BP Portrait Award 2013. Susanne du Toit won the £30,000 first prize for her work *Pieter*, a portrait of her eldest son. The sitting took place in her studio as part of a series of portraits of her family. She allowed Pieter to find his own pose, with the condition that his hands would appear prominently in the composition. She says: "I look to the body to provide as much expression as the face. Having said that, the averted gaze of this portrait, which was his choice, struck me as characteristic of his reflective character, and became intensely engaging."



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BP p.l.c
Chertsey Road
Sunbury-on-Thames
Middlesex
TW16 7LN
United Kingdom
www.bp.com/bpmagazine

Backing our most precious resources.

The arts.



Beatriz Stix-Brunell and Nehemiah Kish in *Trespass*, Metamorphosis: Titian 2012 (©ROH/Johan Persson, 2012)

The arts are something Britain does brilliantly. No wonder millions of visitors fill the UK's art galleries, theatres and concert halls.

It's an integral part of the country's culture and it helps promote Britain to the rest of the world.

That's why BP has been helping to support institutions such as the Royal Opera House, Tate Britain, the National Portrait Gallery and the British Museum for more than 35 years.

Last year alone over 2 million people experienced a BP-supported event in the UK and we will continue to help bring what the country does so well to a wider audience.

Find out more at facebook.com/bpuk

