

Oil Review

Oil · Gas · Petrochemicals

Middle East

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- Ultrasonic technology for ship maintenance
- Promoting pipeline integrity
- Improving asset management with Cloud solutions
- Advancing Gulf petrochemicals
- ADIPEC addresses industry challenges

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→ Editor's note

IT'S BEEN QUITE a year for the oil markets! We started the year with the oil price at its lowest level since 2003, but as our last issue of the year goes to press, we have seen it surge to its highest level for 16 months in the wake of the recent historic agreements of both OPEC and non-OPEC producers to cut production. Will this, as some suggest, herald a new era of sustained higher oil prices? Will the cuts be implemented effectively, and will the show of unity between oil producers be maintained? We can only hope so. Clearly, as the IEA points out in its latest monthly report, the next few weeks will be crucial.

In this issue we look at Saudi Aramco's plans and projects as it focuses on downstream expansion in line with Vision 2030 objectives (p14) and bring you all the news from ADIPEC (p36), which was, if anything, even bigger and better than last year's event.

And finally, very best wishes for a happy and prosperous 2017.

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16-18	GEO India	NEW DELHI	www.exportsolutions.com.au
16-19	World Future Energy Summit	ABU DHABI	www.worldfutureenergysummit.com
22-24	Intersec	DUBAI	www.intersecexpo.com
26-27	North Africa Oil & Gas Summit	MILAN	www.nas.theenergyexchange.co.uk
30-1 Feb.	Petroleum Conference Iran 2017	TEHRAN	www.petroconfex.com
FEBRUARY			
14-16	Egypt Petroleum Show	CAIRO	www.egyptpetroleumshow.com
14-16	Middle East Electricity	DUBAI	www.middleeastelectricity.com
14-16	CWC Iran LNG Partnerships Summit	FRANKFURT	www.iranlngandgas.com
21-23	ME-TECH	DUBAI	www.europetro.com/en/metech2017
21-23	IP Week	LONDON	www.ipweek.co.uk
MARCH			
6-9	MEOS	MANAMA	www.meos17.com
26-30	SOGAT	ABU DHABI	www.sogat.org
APRIL			
11-12	Middle East Heavy Oil Congress	MANAMA	www.meheavyoil.com
26-27	StocExpo Middle East Africa	DUBAI	www.stocexpomiddleeastafrika.com
MAY			
1-4	OTC	HOUSTON	www.otcnet.org

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'Smart Cities' official theme for MEE 2017

MIDDLE EAST ELECTRICITY (MEE), one of the world's leading power exhibitions, has announced its theme for the 2017 edition. Alongside Dubai Municipality and the Environmental Center for Arab Towns, who are Strategic Partners for the event, the organisers will be creating a series of new features, conferences and activities all focusing on the future of Smart Cities, and the innovations which are set to lead the way both locally and internationally in the coming decade.

The inaugural half day 'Energising the Smart City Conference' on 15 February will feature sessions on how best to innovate urban energy solutions. Municipal leaders, electricity solution providers, and research communities have all been invited to take part to discuss how best to reach a sustainable energy mix that adequately supports rising energy demands. It will explore how to better manage a city's energy, how to improve the energy products used by cities and how to make cities 100 per cent renewable.

"We believe that putting an increased focus on Smart Cities will transcend all our new features and



MEE 2017 is set to attract the crowds once again

content offerings. As the region's leading platform for deliberation and growth for the international power community, our goal is to assist the Dubai Municipality in reaching their objectives set by the government on making Dubai a fully integrated 'Smart City,'" said Anita Mathews, group director –

Informa Industrial Group.

Another new feature will be the 'Smart Cities Zone'. Located in Zabeel Hall 3, this dedicated area will feature 'smart', innovative products/solutions from leading suppliers that have specific applications in a 'Smart City', including automation and energy efficiency.

Also taking place, for the fourth year running, will be the Future Generation Competition. Supported by Masdar Institute, this offers students from universities across the UAE a platform to showcase their projects/technologies under the theme of 'Smart Cities'. The shortlisted entries will have the opportunity to present their projects to the public, as well as a panel of judges including an expert from Masdar Institute, with two separate awards up for grabs - the 'Judges Award' and the 'People's Choice Award'.

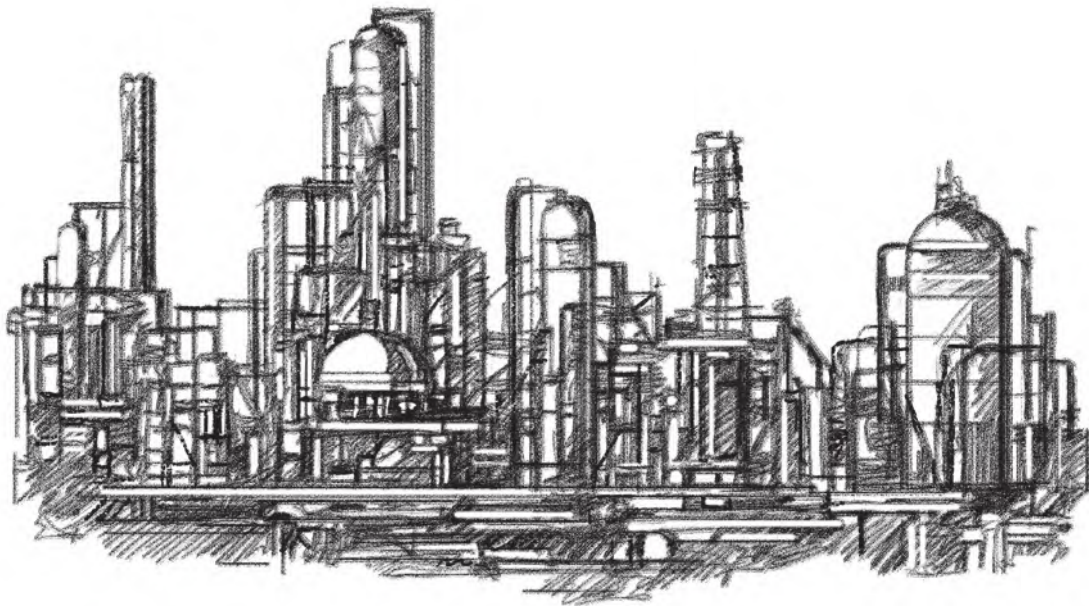
Middle East Electricity 2017 will be taking place from February 14-16 at the Dubai World Trade Centre. For more information please visit www.middleeastelectricity.com.



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MEOS 2017 to focus on innovation and operational excellence

THE 20TH MIDDLE East Oil & Gas Show and Conference (MEOS 2017) will take place from 6 – 9 March 2017 under the patronage of His Royal Highness the Prime Minister of Bahrain Prince Khalifa bin Salman Al Khalifa. Organised by the Society of Petroleum Engineers (SPE) and Arabian Exhibition Management (AEM), MEOS continues to be a premier platform for sharing E&P knowledge and expertise in the region. Over 8,000 oil and gas professionals are expected to converge at the Bahrain International Exhibition and Convention Centre to debate and shape the future of the oil and gas industry in the region over the course of the conference and parallel exhibition.

This year's high-level conference takes place under the theme 'Transforming the Industry through Innovation and Operational Excellence'. "We as an industry are entering a new age of transformation through innovative ways of finding and developing reserves. Operators and service companies are identifying opportunities to do more with less through operational excellence while evaluating the financial outcome of their significant investment. This conference will reflect on the importance of industry transformation, and will address it from many perspectives through



MEOS 2017 is expected to attract more than 8,000 oil and gas professionals

panels with invited industry leaders, presentations and open discussions," said Michael Bittar, 2017 MEOS conference programme co-chairman and senior director at Halliburton.

400 papers will be presented during 50 technical sessions covering topics on reservoir, production and facilities, exploration and appraisal, drilling and completions, project management, human resources, business models, and HSSE.

Highlights of the conference programme include a ministerial session, where regional oil and gas ministers will look at the global energy

picture; an executive plenary session involving leading industry figures discussing the conference theme; an industry keynote session led by OPEC entitled 'Oil Price Volatility: Continue Investing in the Future to Meet Future Demands or Control Cost to Survive?'; six panel sessions discussing important matters relevant to today's industry, and a special workshop entitled 'Women in Leadership – Invest, Initiate'.

Two one-day training courses entitled 'Advanced Hydraulic Fracturing Design and Treatment' and 'Artificial Lift and Production Optimisation Solutions' will provide delegates with further opportunities to improve technical skills, while a full programme of events aimed at the next generation of oil and gas professionals will offer high school students, university students and teachers the chance to engage and gain valuable career advice.

The exhibition will feature over 200 exhibitors from 30 countries, including GCC national oil and gas companies, international supermajors, service industry giants and independent specialist suppliers and distributors from across the globe.

For further information see the website at www.meos2017.com.

Petroleum Conference - Iran 2017 to boost partnerships with international companies

THE PETROLEUM CONFERENCE – Iran 2017, will be held from 30 January - 1 February 2017 at the IRIB International Conference Center in Tehran. The event is the follow up to the Iranian oil and gas associations' initiative to form a 'united voice' of Iran's petroleum private sector, with a focus on the midstream and downstream sector, as convened at the Petroleum Conference – Iran 2016 conference in October 2016.

The 2017 conference will be attended by Iran's Head of Parliament, H.E. Dr. Ali Larijani, Minister of Petroleum H.E. Bijan Zanganeh, and Deputy President in Science & Technology Dr. Sorena Sattari, who have been invited to speak on current economic trends, and Iran's petroleum investment opportunities Speaking exclusively to Oil Review Middle East, Mohammad Reza Tabibzade, PetroConfex 2016 and 2017 steering committee member and speaker commented, "The main rationale behind the organisation of this conference is to understand the situation and the role of the main players in the petroleum industries, in both private and governmental sectors, and to facilitate the better relationship between these two parties."

The conference will address challenges and opportunities in the development of Iran's oil and gas industry, continued Tabibzade, such as the impact of sanctions, with key

issues being the question of international financing to support the import of goods from the international market, and the transfer of new technology and management skills.

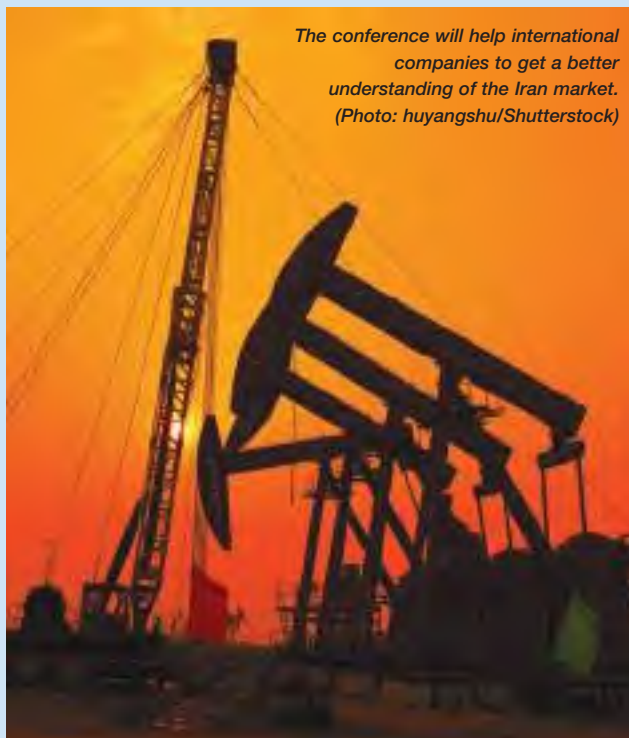
"The Iran petroleum industry offers huge market potential in terms of oil, gas and petrochemical projects. This conference will help international

companies to get a better understanding of Iranian market and the potential of Iranian contractors, manufacturers and suppliers," he added.

Key features of the conference will be the presence of international companies and the main oil and gas players, the focus on a wide range subjects related to oil and gas, and a good selection of speakers, he concluded.

Dr. Seyyed Hamid Hosseini, head of the Petroleum Conference – Iran 2017 remarked, "We believe that by removing long existing barriers, an injection of both national and international investments will allow the oil and gas sector to return to the traditional driving force it enjoyed and also assist other sectors of the Iranian economy. The Petroleum Conference – Iran 2017 will be a platform for the private sector in Iran to identify co-partners, with the co-operation of international experts."

For further information see the website at www.petroconfex.com.



The conference will help international companies to get a better understanding of the Iran market. (Photo: huyangshui/Shutterstock)



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Exploration could return to profitability

A NEW STUDY by Wood Mackenzie on *Global Exploration: What to look for in 2017* shows that exploration should return to profitability in 2017 after five years of only single-digit returns.

Dr Andrew Latham, vice president of exploration at Wood Mackenzie said, "The industry has a good chance of achieving double digit returns in 2017. Smarter portfolio choices and lower costs are already paying off. Fewer, better wells promise a brighter future for explorers."

The study finds that exploration in 2017 will continue its transformation to a smaller, more efficient industry. Overall investment will at best match 2016 year's spend of around US\$40bn, and may yet fall further. The best discoveries are likely to come from new plays and frontiers, says Wood Mackenzie, with more than half the volumes expected to be found in deep water.

The industry has cut exploration deeper than other upstream spending, but if the Brent price rises sharply from 2019, recovery in exploration spend will follow a year or two later.

Emerging exploration themes in 2017 include exploration for pipe gas opportunities near under-supplied markets such as parts of North Africa, Eastern Europe and Latin America; the de-emphasis of over-supplied LNG plays; and the shunning of high-cost frontiers.

New deals signed to develop oil and gas fields in Iran

RUSSIA'S GAZPROM NEFT has signed a preliminary agreement with NIOC to develop two major oilfields in Iran. It will carry out studies at the Cheshmekosh and Changouleh fields near the border with Iraq, according to Iran's Shana news agency.

This follows Shell's provisional agreement to develop oil and gas fields in Iran. A spokesman for Shell said that a memorandum of agreement was signed with the National Iranian Oil Company (NIOC) "to further explore areas of potential cooperation". The agreement is non-binding and involves the development of Iran's oilfields in South Azadegan and Yadavaran and the Kish gas field, according to *Reuters*. The South Azadegan and Yadavaran fields share the border with Iraq.

French energy company Total also signed a deal in November to develop a large gas field in Iran and is now negotiating an oil deal. Despite the nuclear agreement, doing business in Iran is a challenge for Western companies. This is in large part due to residual US sanctions that don't allow American banks to be involved in any transactions.

Iran aims to produce 4.28mn bpd by 2020, from 3.67mn now, according to Iran's Oil Ministry comments and data compiled by Bloomberg. It is prioritising the development of shared fields on its borders, where its output has generally fallen behind that of its neighbours due to a lack of foreign investors.



Iran has the fourth-largest oil reserves in the world and is producing more than 3.5mn bpd despite its aging infrastructure. (Photo: Paul Lowry/Flickr)

Saudi Arabia and Kuwait to restart oil production from Neutral Zone

SAUDI ARABIA AND Kuwait are expected to agree to resume oil production from the jointly operated oilfields in the Neutral Zone that lies between both countries, industry sources have told *Reuters*.

The closure of the Neutral Zone's fields, mainly Khafji and Wafra, has become a political sticking point between the two countries and senior officials have been trying to resolve the issue for months.

Khafji was shut in October 2014 for environmental reasons and Wafra has been shut since May 2015 due to operating difficulties. The restart would come at a sensitive time for the oil markets after OPEC agreed recently to reduce output by around 1.2mn barrels per day (bpd) from January in a bid to reduce global oversupply and prop up prices.

The Khafji field had been producing 280,000 to 300,000 bpd until its closure.

It is operated by Al-Khafji Joint Operations Co, a joint venture between Kuwait Gulf Oil Company and AGOC, a subsidiary of Saudi Aramco.

The Wafra field has an output capacity of about 220,000 bpd of Arabian Heavy crude. US oil major Chevron operates the field on behalf of the Saudi Arabian government. Kuwait has limited spare production capacity and has therefore been hit harder than Saudi Arabia by the closures.

The Neutral Zone is the only place in Saudi Arabia and Kuwait where foreign oil firms have equity in fields, which are otherwise owned and operated by state oil companies. Crude output is divided equally between the two countries.

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'Gulf petchem producers need to build capabilities, invest in people'

PETROCHEMICAL AND CHEMICAL producers in the Gulf are well-positioned to build upon decades of success by further developing their capabilities and investing in the next generation of talent, said speakers at the 11th edition of the Annual GPCA Forum that took place in Dubai from 27-29 November 2016.

Besides maximising their own feedstock advantage, companies should explore new and innovative avenues for petrochemical and chemical production, while also focusing on product differentiation through leveraging existing technologies and driving innovation.

"This part of the world is home to some of the most talented, ambitious and promising individuals, which offers significant opportunities for global and regional stakeholders. To build for the future, we will need to harness the talent of the next generation of scientists and engineers today so they can lead the industry into a better and more prosperous tomorrow," said Abdulwahab Al-Sadoun, secretary general of the GPCA.

Delivering the opening address at the 11th Annual GPCA Forum, Yousef Al-Benyani, SABIC CEO and GPCA chairman, urged the Gulf chemical industry to build local capabilities and start attracting the high-end manufacturing operations that the region needs to truly transform itself and create high-quality manufacturing jobs. In this regard, the establishment of more research and development centers in the GCC region was a positive sign, he said.

Sultan Ahmed Al Jaber, UAE minister of state and ADNOC Group CEO, added, "If we are to thrive in today's intensely competitive global economy, partnerships are more critical than ever. The sheer growth,



Abdulwahab Al-Sadoun, secretary general of the GPCA, speaks at the forum

scale and diversity of the petrochemical demand curve require us to shape partnership models best suited to seize the moment."

Over 2,000 delegates descended from all corners of the globe for a three-day event of knowledge sharing, innovation and best practice exchange. Among the key themes and topics discussed during the conference were talent training and development, the role of digitalisation in driving profitability, how to optimise supply chain operations and long-term strategies for business growth and success.

UAE and Saudi Arabia plan to expand petrochemicals output

ABU DHABI NATIONAL Oil Company (ADNOC) plans to almost triple its petrochemical production to an annual 11.4mn tonnes by 2025 from 4.5mn tonnes at present, group chief executive Sultan Al Jaber has announced.

"To achieve this, we will seamlessly integrate our petrochemical and refining business, and as supplies of gas become tighter, we will expand our feedstock beyond ethane to include naphtha," Al Jaber said, according to a Reuters report.

However, Al Jaber did not give any details of ADNOC's expansion plan but said the company aimed to take advantage of a shift in demand from lower-growth markets in the West to high-growth markets in Asia.

He also suggested that petrochemical producers in the six-nation Gulf Cooperation Council (GCC) should explore new ways of working together, including joint investments in projects.

ADNOC's petrochemicals are produced by Abu Dhabi Polymers Company (Borouge), which makes polyolefin, and Ruwais Fertilizer Industries (Fertil), which produces urea and ammonia fertilisers.

Meanwhile, Saudi Aramco also aims to almost triple its chemicals production to 34mn metric tonnes per year by 2030, a senior company executive said. "In chemicals, our equity capacity, across our global operations, is expected to grow from 12mn metric tonnes per year to 34mn over the same period," Abdulaziz al-Judaimi, the company's business line head for downstream, stated.

Over the same period, Saudi Aramco's global refining capacity is set to rise up to 10mn bpd from more than five million bpd currently.

The company's refining capacity has grown as it has invested heavily to raise its oil production capacity to 12mn bpd.

Developing petrochemicals is part of the Kingdom's Vision 2030 economic reform plan announced this year.

Saudi Aramco has been integrating its refineries with petrochemical infrastructure as it develops its downstream business and expands its trading of refined products. The integration will help it to maximise value from its hydrocarbon base, diversify feedstock and chemical products, which is the key to its plans to diversify its operations.

1968 THE FUTURE COMING FROM THE PAST 2016

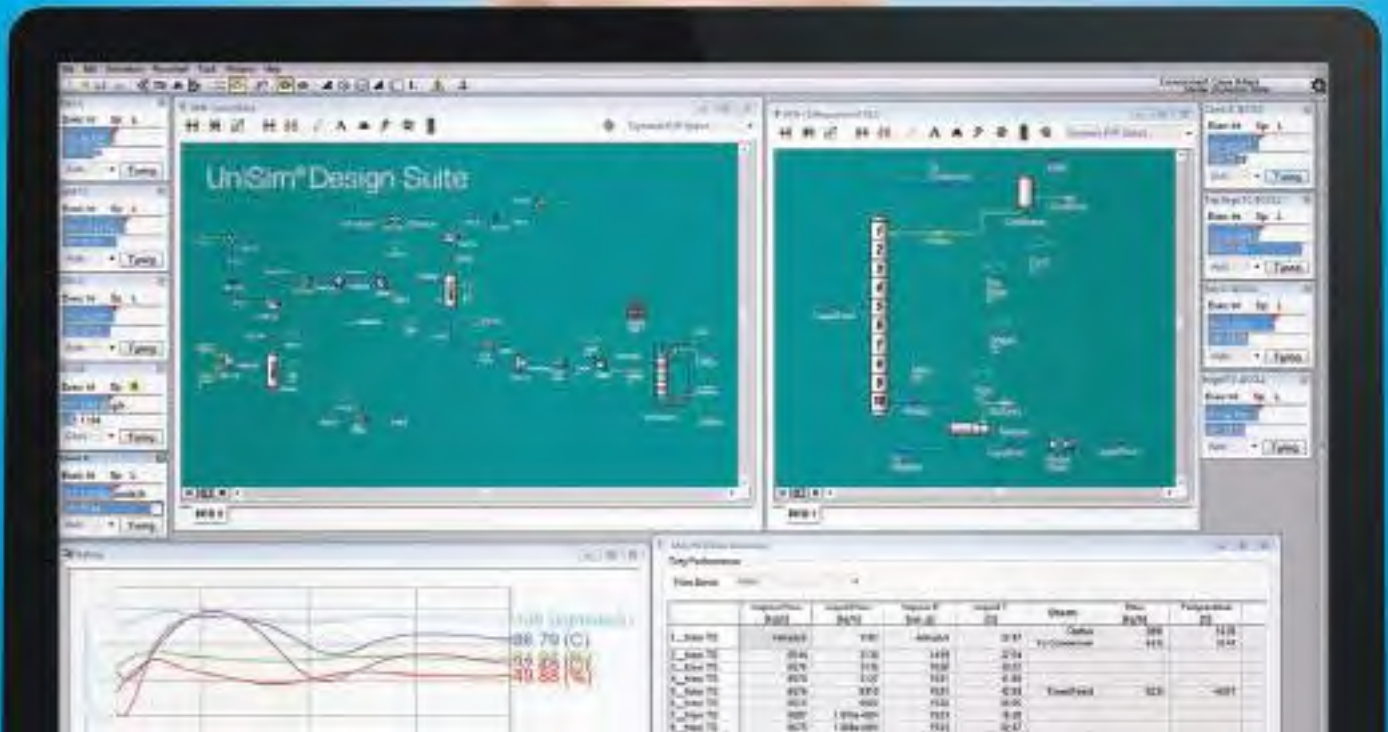
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Sustainable efforts: 10 years of WFES

Abu Dhabi will host the 10th edition of the World Future Energy Summit (WFES) and the fifth edition of the International Water Summit (IWS) in January 2017.

TAKING PLACE FROM 16-19 January, the World Future Energy Summit (WFES), part of Abu Dhabi Sustainability Week, will celebrate its 10-year anniversary in 2017. An event dedicated to advancing the use of renewable energy, energy efficiency and clean technology, exciting changes are being made to the exhibition and conference that will make it the most interactive and inspirational to date, according to organiser Reed Exhibitions.

Within the exhibition, dedicated country pavilions will enable attendees to meet with influential industry and government figures. In 2016, the WFES brought together 600 companies from 32 countries and more than 30,000 attendees from 150 countries, making it an essential place to network and seek new business opportunities.

Next year, the WFES conference will focus on trends in financing renewable energy projects, the importance of energy efficiency in both existing and future buildings, smart infrastructure and innovation. It will include two in-depth country focuses, discussing solar, wind and nuclear energy opportunities and trends in Saudi Arabia and India, two of the world's most exciting countries for future clean energy projects.

Meanwhile, investment in GCC water projects is estimated at US\$300bn between 2012 and 2022. Co-located with WFES, the International Water Summit (IWS) will give access to key decision-makers in the MENA region. The GCC's successful record of overcoming extreme water scarcity in one of the driest parts of the world will be a cornerstone of the fifth IWS.

As demand for domestic, agricultural and industrial uses continues to grow, the UAE and other GCC states continue to offer a prime market for innovations that can increase supply and reduce waste, while also considering broader sustainability issues. These include more efficient desalination of seawater such as using solar energy to power desalination plants, reducing losses in the distribution network, improved irrigation methods for agriculture, and better treatment and use of recycled waste water.

IWS will support MENA water sustainability and business deals, running under the theme of "Promoting Sustainable Water in Arid Regions", as a signature event of Abu Dhabi Sustainability Week 2017. IWS is hosted by Masdar in strategic partnership with the Abu Dhabi Water and Electricity Authority.

Abu Dhabi Sustainability Week (ADSW), from 12-21 January 2017, will also host industry experts to advise on the global mandate for renewable energy and clean technologies that can be translated into concerted policy and business action.



Scheduled to follow the 2016 COP 22 meeting in Morocco and annual sessions of the United Nations General Assembly, WFES 2017 will bring together the world's leading renewable energy professionals, policy makers, innovators and investors. (Photo: WFES)

The first ADSW Advisory Council will also be hosted at the event on 17 January 2016. The council's membership comprises both international and Middle East-based opinion leaders, supporters and speakers at ADSW.

Mohamed Jameel Al Ramahi, CEO of Masdar, Abu Dhabi's renewable energy company and the host of ADSW, said, "As a global platform for addressing the interconnected challenges of clean energy, water and sustainable development, Abu Dhabi Sustainability Week has developed lasting partnerships with many of the world's most admired experts and opinion formers on sustainability issues.

"The guidance of the ADSW Advisory Council, representing the broadest cross-section of the sustainability domain, will ensure that ADSW continues to set the action-agenda from both a policy and business perspective – this is particularly important now that the clean energy sector has moved from the margins into the mainstream as a dynamic, commercially viable growth market."

The theme for ADSW 2017 is 'Practical Steps Towards a Sustainable Future'. The opening ceremony will initiate four days of presentations, discussions and workshops on a range of pressing topics across energy, water and waste. These include strategies to drive investment, implementation of the Paris Agreement, and the challenges of adapting existing infrastructure to the new market reality of small-scale, distributed power. ■

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Business as usual for Saudi Aramco

Despite the countdown to a ground-breaking IPO, expected in early 2018, Saudi Aramco remains firmly focused on business as usual, including a massive upgrade of its downstream capacity, in line with the Kingdom's Vision 2030 objectives.

IT'S A BRAVE new world for Saudi Aramco, as the state-owned oil giant counts down to a debut flotation on the stock market. More so, perhaps, for other oil companies, analysts and onlookers, eager to get a clearer glimpse into the workings of the world's biggest oil producer.

As part of the stock market listing – expected to take place in early 2018 – Khalid al-Falih, Saudi Arabia's energy minister, has said that the Kingdom will publish more details on the company for would-be investors, including an all-important new total for its oil reserves.

For decades, Saudi's reserves have been held at 260bn barrels, but after years of such intense production it remains to be seen whether geologists have kept pace in locating new deposits to replace old ones.

As well as all the other additional paperwork required for an initial public offering (IPO), the reserves figure is seen as of paramount importance to the eventual valuation of the company, optimistically put as high as US\$2 trillion.

Saudi Aramco plans to list in Riyadh, with a dual listing possibly on an Asian exchange, with London and New York also under consideration, and around five per cent of the company on offer, including exposure to both upstream and downstream parts of the business.

Bankers and brokers are currently climbing over themselves to get a piece of the action, in a transaction which could generate US\$1bn in bonuses and advisory work alone.

The move can also be seen as facilitating Saudi Aramco's ambitions to 'go global', providing the transparency needed to compete in global upstream projects.

Economic diversification

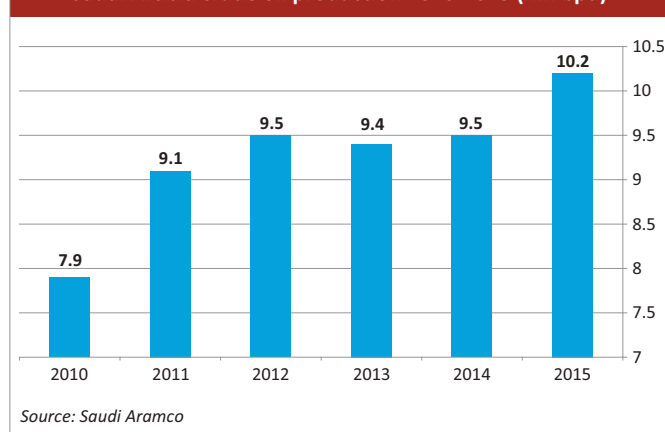
The share sale is part of the Saudi Vision 2030 plan to reduce the country's dependence on oil revenues.

It's certainly a unique opportunity to participate in Saudi Arabia's vast oil production machine. Aramco pumped 10.2mn bpd this year, but was among the supporters of a recent OPEC move to cut output slightly, a decision driven by falling oil revenues.

Nonetheless, its mammoth energy sector continues to dominate the economy, with ongoing investments in upstream oil and gas production, and increasingly diversification into new downstream areas.

“The goal is to double the percentage of locally produced goods and services.”

Saudi Arabia crude oil production 2010-2015 (mn bpd)



It plans to spend about US\$334bn over the coming decade on infrastructure and projects to maintain oil capacity, Abdulaziz al-Abdulkarim, vice president for procurement and supply chain management, told a recent conference. The spending plan, covering the period through to 2025, also focuses on boosting local content, another important theme of the government's vision for the future.

Saudi Aramco's own In-Kingdom Total Value Add (IKTVA) programme was unveiled last year, which seeks to channel more work and projects into the hands of local companies. The goal is to double the percentage of locally produced goods and services to 70 per cent of the total spend within five years. The initiative is also driving private operators to do the same, with major suppliers such as Schlumberger and Siemens outlining their own local content plans.

Joint ventures

A key part of Saudi Aramco's activity of recent years has been on

Saudi Arabia Oil & Gas

	2013	2014	2015
Recoverable crude oil & condensate (bn barrels)	260.2	261.1	261.1
Crude oil production (mn bpd)	9.4	9.5	10.2
Crude oil exports (mn barrels)	2,677.0	2,544.0	2,603.0
Recoverable gas (trillion scf)	288.4	294.0	297.6
Raw gas processed (bn scfd)	11.0	11.3	11.6
NGL from hydrocarbon gases (mn barrels)	455.9	471.3	474.4
Total NGL exports (mn barrels)	320.7	329.9	331.2

Source: Saudi Aramco

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building new partnerships in order to nurture and enhance local content development throughout the work chain. This includes expanding its footprint in the upstream services segment, and to exploit the potential for more offshore development.

In November, it teamed up with US-listed Rowan Companies to create a 50-50 joint venture to own, operate and manage offshore drilling rigs in Saudi Arabia. Rowan offers contract drilling services with a fleet of 30 mobile offshore rigs and drill-ships, including ultra deepwater units. The joint venture, which will commence operations in the second quarter of 2017, will use Rowan's established business in Saudi Arabia and focus purely on offshore work in the kingdom.

Tom Burke, Rowan's president and chief executive, said the pact will "uniquely position" the company to participate "in the growing Saudi Arabian offshore drilling market".

Initially, the US firm will contribute three of its jack-up rigs to the joint venture, while Saudi Aramco will contribute two of its own jack-ups. There are plans to add two more units to the roster in late 2018, and ambitions to purchase new-build rigs that will be constructed in Saudi Arabia in the future, underscoring the shift to more home-grown project content.

“ There are plans to almost triple chemicals output to 34mn tons per year by 2030.”

Downstream focus

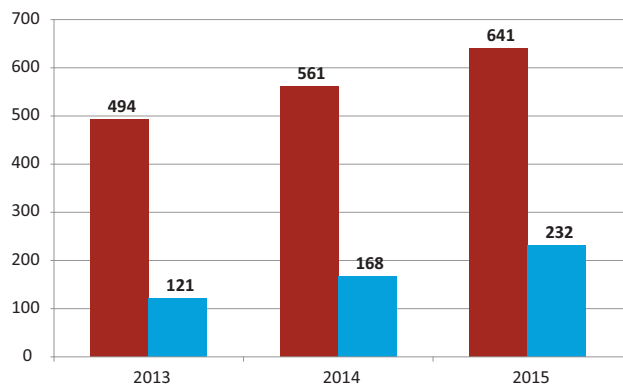
Indeed, as is typical in ultra conservative Saudi Arabia, little has changed in Saudi Aramco's day-to-day work and activities on the ground. Despite the company's dominance, especially in the upstream segment, it has long cultivated and encouraged partnerships with other leading industry players. This is perhaps more evident currently in the downstream field, which continues to show strong growth, and where joint venture partners like Total and other international oil majors have played a vital role.

Abdulaziz Judaimi, Saudi Aramco's business line head of downstream, said recently that for the region to retain its place as a global petrochemicals hub, it must continue to innovate and advance.

"The only way to sustain competitiveness and growth," he told a Dubai conference, "is to continue developing more differentiated, higher value products, continue creating strong brand identities, and continue upgrading to stay ahead of the curve."

He said there are plans to almost triple chemicals output to 34mn tons per year by 2030, while its global refining capacity is set to rise to 8-10mn bpd, from more than five million bpd presently.

Refined products production & exports (million barrels)



Source: Saudi Aramco

■ Production ■ Exports

He added that the development of the non-oil private sector, including the chemicals industry, has become a "strategic necessity" for Saudi Arabia and the whole region. This meant there would "continue to be opportunities" for the private sector to invest in large-scale integrated base petrochemicals projects, underpinned by the Kingdom's huge, low priced oil and gas feedstock.

Judaimi also singled out further expansion in the production of specialty chemicals. That was the idea behind Sadara Chemical Company (Sadara), Saudi Aramco's joint venture with The Dow Chemical Company, he said, and Arlanxco, its joint venture with Lanxess of Germany.

Grand designs

Certainly, the scale of Aramco's enterprise is truly impressive, no better illustrated than in the inauguration of two of the country's biggest plants - including the Sadara complex - in November, by King Salman.

The Sadara project, located in Jubail Industrial City in Saudi's Eastern Province, is the largest integrated chemicals complex in the world to be built in one phase. It commenced operations in 2015, with all remaining operating units scheduled for completion by the end of 2016. Its production capacity is more than three million tons of various plastics and chemicals products annually.

Sadara also marks the largest foreign direct investment yet in the Saudi petrochemicals industry.

The same month, King Salman inaugurated the Saudi Aramco Total Refining and Petrochemical Company (Satorp), a joint venture with Total, also in Jubail. It can process 400,000 bpd of heavy Arabian crude into low sulphur gasoline, diesel and jet fuels, plus over one million tons of paraxylene, benzene, sulphur and pure petroleum coke for cement plants, power stations and other users.



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This project alone created 5,700 new direct and indirect jobs, but also generated a huge amount of work for local firms during the construction phase. The construction of the project involved a staggering 45,000 workers, with 80 per cent of the work performed by local subcontractors.

Upstream, of course, similar efforts are underway to maintain the Kingdom's enormous production infrastructure.

During King Salman's recent tour, he also visited the giant Manifa field, the fifth largest oil field in the world, located offshore in the Gulf, as well as the Wasit gas plant and the Khurais oilfield expansion.

The target with these and other projects is to boost overall upstream production capacity to more than 12.5mn bpd.

It seems that whatever happens with the global energy markets in the years ahead, and the forthcoming IPO, Aramco will be ready. ■

GASCO looks to expansion

THE NATIONAL GAS & Industrialization Company (GASCO) was gold sponsor of the 8th Saudi Arabia International Oil & Gas Exhibition (SAOGE), which took place from 17-19 October in Dammam.

Amer Saleh Al Khushail, vice president for unfilled BU and Imad al Sabbagh, sales and marketing director, spoke to *Oil Review Middle East*.

"This is our first time at SAOGE. It is the only oil and gas exhibition in the Kingdom, so we feel it our responsibility to be here. The company is intending to visit all GCC countries for business.

"GASCO, a semi-government company, is 62 years old, and its shares have been listed for 40 years. The main activity is the distribution of LNG, although the company strategy is 'safe

source energy', not necessarily just LNG but oil as well. The core business is cylinder and bulk gas across all segments, from individual buyers, to industrial, commercial and agricultural etc. It currently has more than 3,000 employees spread across seven plants, but is keen to expand further.

"GASCO has been under new management for 12 months, and this has resulted in a huge transformation across the company, from commercial to administration and transport; it now has more than 700 trucks! Nothing is outsourced, the company owns and operates everything itself, and is proudly 100 per cent Saudi owned.

"GASCO's Saudisation record currently stands at 95 per cent, and it is looking at expansion

across the Kingdom. It is currently headquartered in Riyadh, but will be opening up more plants over the next few years. This will increase the number of Saudi employees. A Saudi Arabian can achieve so much, if given the chance.

"We are constantly focusing on the message that we want 'the safest source for energy'. Health and Safety is our number one priority; we constantly strive to improve our methods, through training, and individual security.

"The company has been affected by the low oil price and it hasn't been easy, but gas is a strategic product for the government. We have also benefited from the fact that the gas price has been capped for consumers. This makes it far easier to manage our costs."

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Saudi Aramco signs new agreements to promote localisation

ON THE SIDELINES of the iktva Forum 2016, held on 14 December, Saudi Aramco signed agreements and MoUs with several strategic partner companies, including a joint venture with Rowan to own, manage, and operate offshore drilling rigs in Saudi Arabia (see p20); a joint venture with Nabors to own, manage, and operate onshore drilling rigs in Saudi Arabia; and MoUs with Siemens to formalise collaboration efforts on digitisation and on fuel treatment.

Agreements in local manufacturing development were also signed with Jubail Energy Services Company (JESCO) and ArcelorMittal Jubail for oil country tubular goods (OCTG), and a separate agreement with J-Power Systems Corporation Japan for submarine electrical cables. Additionally, two agreements were signed with the National Maritime Academy and the National Aviation Academy to help further develop human capital in the Kingdom.

The iktva Forum underlined Saudi Aramco's commitment to its In-Kingdom Total Value Add (iktva) localisation programme by celebrating the accomplishments made by both the company and its suppliers since its launch a year ago, and discussed means to advance Saudi Aramco-

supplier engagements to higher levels of commitment and implementation of the iktva objectives.

H.E. Khalid Al Falih, Minister of Energy, Industry, and Mineral Resources and chairman of Saudi Aramco, said in a keynote speech, "iktva represents a pioneering and model program, among other major programs which the Saudi Arabian government is working on to expand and diversify the economy, localise strategic industrial and economic sectors, and create jobs, in alignment with Saudi Vision 2030."

Al Falih said that the localisation of the Saudi economy by both the public and private sectors, reached 35 per cent in 2015 and is expected to reach 50 per cent by 2021, 59 per cent by 2025, and 70 per cent by 2030. "These ambitious targets will be pursued through an integrated programme to encourage suppliers to procure their goods and services locally," he said.

In his keynote address, Saudi Aramco president and CEO Amin H. Nasser said, "Iktva can be part of the building blocks for a thriving and competitive world class Saudi energy sector as Saudi Aramco champions massive investments that will create new industries, which

will need completely new localised supply chains... We remain committed to procuring goods and services worth more than SR1 trillion over the next decade. Therefore, vast opportunities are there for all our suppliers by ensuring that 70 per cent of those riyals are adding value in the Kingdom."

Nasser called on suppliers not to limit their presence only to final assembly operations, but rather, to establish and develop their manufacturing supplier base, and regionalise their research and development (R&D) alongside their operations in the Kingdom.

During the Forum, Saudi Aramco awarded five supplier companies the "iktva Excellence Awards" in recognition of their commitment and contributions to the iktva goals and objectives.

The awardees included:

- Schlumberger for "Highest in Saudi Workforce"
- Arabian Pipes Company for "Highest in Localised Goods and Services"
- Arabian Drilling Company for "Best in Employee Recognition"
- General Electric Oil & Gas for "Best in Supplier Development"
- Halliburton for "Best in Training & Development"

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LED tubular light fitting designed for extreme temperature conditions

WHILE CONVENTIONAL LINEAR luminaires are usually ill-equipped to withstand extreme temperatures and harsh environments, much less for long periods of time, R. STAHL's 6036 series LED tube lights can be the solution.

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The lightweight R. STAHL series 6036 tubular light fitting is suitable for universal use in extremely demanding environmental conditions



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-55°C while also withstanding extreme temperature fluctuations, making them suitable for such applications as LPG exploration in the Arctic region. The LED tube lights are available with an IP66, IP67, or IP68 ingress protection rating, making them suitable also for maritime applications.

They are vibration-proof and impact-resistant up to IK 10, claims the company. Available in 0.75m, 1.1m, and 1.4m versions, these durable units feature a nominal lifespan of 80,000 hours. While their design is very rugged, the LED tube lights are absolute lightweights – their maximum weight of 2.45 kg is less than half that of comparable linear luminaires, says the company. These low-maintenance products are suitable for general lighting purposes or as machine lamps. Due to their slim design, they are easy to install, even in hard-to-access locations, adds the company.

Also, the 6036 series is light-efficient: overall power consumption is only about half that of conventional box-type units and the specific power consumption per 100 lx is 1.5 W/m², claims the company. Operating expenses are therefore greatly reduced – realistic cost savings range from around 20 per cent to more than 50 per cent, depending on the relevant time frame and specific solutions it says. In addition to ATEX and IECEx certificates for zones 1/21 and 2/22, the lights feature various regional approvals for many major markets (EAC TR CU, Gazpromnadzor, UL do Brasil, GL).

The versatility of the series is further enhanced by the choice of connection cables: while H07RN-F is the default, users can also choose Thermflex, low-temperature, special offshore cables, or cables that are high-voltage-proof up to 1kV.

For further information, see R. STAHL's website: www.stahl-explorers.com.

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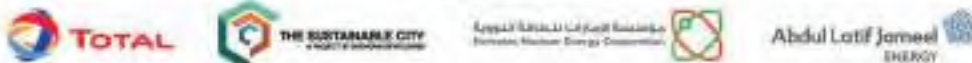


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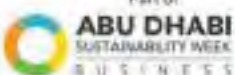
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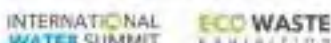
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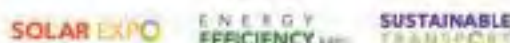
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New low cost, low maintenance compact screw pumps

Leading screw pump manufacturer Leistriz Pumpen GmbH discusses the launch of its new series of compact screw pumps especially designed for tank terminal applications.

AT THIS TIME of volatile oil prices, tank terminals are experiencing buoyant development. All over the world new tank terminals have been built and more are planned, to meet the growing demand for crude and refined oil products.

Innovative and flexible pumping systems contribute to the smooth and cost-efficient operation of tank terminals, with screw pumps increasingly being used to transfer stored oil products due to their versatility in comparison to conventional centrifugal pumps. With tank terminals getting bigger and bigger, resulting in longer pipe runs, centrifugal pumps are a limiting factor, while twin-screw pumps provide a virtually constant capacity over a wide viscosity and pressure range.

Leistriz Pumpen GmbH has responded to these market developments with the release of a new generation of slim and economic rotary positive displacement pumps – the L4NC pump series. Especially designed for tank terminal applications, it covers a wide range of areas and can also be used in the chemical, petrochemical and shipping industries as loading and unloading, stripping and booster pumps.



The compact spindle lengths are arranged side by side for optimal lubrication of the bearings and timing gears



The final assembly of spindles for the LN4C

This series builds on the proven concept of Leistriz's twin screw pumps, which have been in use for decades. The compact L4NC series, which complies with the API 676 3rd Edition, is equipped with a cast steel casing with integrated pump liner and a side in – top out arrangement with ASME or DIN flanges. The fact that the spindles are manufactured from a single piece of metal means there is very low shaft deflection, resulting in a long service life of bearings and shaft seals and high efficiency. The compact spindle lengths are arranged side by side for optimal lubrication of the bearings and timing gears. Moreover, the pumped media can support the spindles hydrodynamically to achieve the highest performance values, even with reduced pump sizes. Drive spindle and idler spindle are sealed by unbalanced or balanced, single acting component or API cartridge seals for easy maintenance. Seal manufacturers, materials and the detailed design are always selected to perfectly match the client's operating conditions.

The series consists of seven pump sizes, each with four pitch variants, offering an

optimal selection per application. The wide range of sizes covers a flow rate up to 5,000 m³/h and a differential pressure up to 20 bar for various fluids such as crude oil, bitumen, heavy and light fuel oil or other petrochemical compositions.

“The series builds on the proven concept of Leistriz's twin screw pumps.”

With the launch of the new and optimised L4NC pump, Leistriz Pumpen GmbH has created a milestone in modern, efficient and compact twin screw pump design with reduced costs. The low capital expenditure (CAPEX) combined with the high efficiencies and low maintenance work for optimised operational expenditure (OPEX) are the results of long-term development and well established know-how. ■

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Sealing, connecting and protecting global pipelines

Richard Edwin, general manager Garlock Pipeline Technologies, Middle East, discusses the company's solutions to promote pipeline integrity.

PIPELINE AND FLANGE corrosion is a major issue for the oil and gas industry, costing operators billions of dollars a year. In fact, some operators estimate that 60 to 70 per cent of maintenance costs are directly related to corrosion issues.

In response to this, Garlock Pipeline Technologies (GPT) was created in March 2012 by the combination of PSI (Pipeline, Seal & Insulator) and Pikotek®, two businesses under the EnPro Industries umbrella, to manufacture and supply reliable, high quality products to major international oil and gas operators, pipeline transmission companies and engineering and construction contractors.

"GPT is currently the world's leader in flange isolation products and pipeline accessories and was an evolution of the original Pikotek® product, which was the development of a new isolation gasket to be used in the Alaska pipeline in 1979. Those original products are still there, and many other new and advanced isolation products have been developed since then. Today our customers include Shell, BP, Chevron, Exxon, PDVSA, ADNOC, Aramco, Qatar Petroleum, Reliance India and many others," says Edwin.

From its two locations in Denver, USA, and St Neots in the UK, GPT manufactures a full range of flange isolation kits that are made up of vital components; together these ensure the ongoing integrity and safety of piping systems. Designed to seal and electrically isolate complete flange assemblies, the flange isolation kits can control the current flow in cathodic protection systems while also eliminating galvanic corrosion by removing metal-to-metal contact.

"One notable product is a fire safe isolating gasket, the patented VCFS (very critical fire safe) product, which were the first flange isolation kits in the world to be approved to API 6FB standards. The gaskets utilised in the VCFS design have a patented seal system that in the event of a fire will contain the media. It remains the best-in-class isolation and is used globally.

"There are three primary areas that give

GPT a competitive edge," Edwin continues. "The first is the fact that we have been producing isolation kits longer than any other manufacturer for critical applications. This experience is immeasurable when it comes to product performance; customers know that they are using robust, time-proven designs that will last for years.

"The second area is that we have the largest staffing of engineers for any isolation kit manufacturing company. Engineers provide technical support to our customers, develop new designs and offer regional support; this is extremely important to our customers because applications vary so widely in design, media types, temperatures and pressures,



Richard Edwin, general manager, Garlock Pipeline Technologies, Middle East

that having an engineer do the research on chemical compatibility, thermal limits, pressure ratings, corrosion activity, metallurgy and so on at no charge is a great advantage.

"The third area is new product development, with GPT known as the leader in new isolation technology. This effort is a combination of a super engineering group matched with strong marketing tools such as Voice Of the Customer (VOC). These tools ensure that products developed meet the current and future needs of our customers."

The most recent example of the company's drive for innovative solutions that will enhance the integrity of pipeline systems while also meeting the demands of tomorrow is the new VXCT high temperature flange insulating kit, which was launched in April 2016.

"There have been higher temperature isolating products available by GPT and other manufacturers in the past, but the development of the new VCXT really puts it in a category by itself. It has the highest temperature rating available steam resistance and the best sealability of any high temperature isolating product on the market," highlights Edwin.

"Over the coming years, we will re-invent the isolating kit. Customers have been very helpful in describing their issues with gaskets in general, and GPT intends to address all of these issues so that our customers can rest assured that their isolation systems are operating perfectly," he concludes. ■



Examples of GPT products

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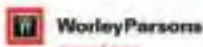
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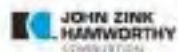
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Our field development plans are ongoing throughout the Middle East, given the gas demand and none more so than in the UAE where priorities in ADNOC's integrated gas master plan include tapping into deep and sour gas reserves and deploying innovative CCUS for EOR. SOGAT 2017 has been designed to reflect these interests with the Advisory Committee specifically selecting workshops and papers in the conference programme as shown below. Moreover special arrangements have been made with ADNOC for a group of 100 senior technical managers to participate in SOGAT thus ensuring highly active networking and interactive discussion for the benefit of all parties involved in these ongoing plans.

SOGAT Workshops

March 26-27

SOGAT Workshops will be highly practical in nature and allow for interactive discussion to address delegates' concerns and issues and will focus on: Amine Treatment; Sour Gas Process Optimisation and Simulation; Novel Methodologies in Mercaptan Removal, and are separately bookable.

13th International SOGAT Conference

March 28-30

The Conference Programme will feature such technical topics as:

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- Successful implementation of flare gas recovery systems
- Performance improvements in AGR from ultra sour wells
- Dealing with CO₂ cycling due to CO₂-EOR
- Operational process safety experiences at the Shah field
- Recovery processes for small to medium remote sulphur load fields
- Specialised solvent to improve H₂S removal performance
- Energy performance benchmarking of gas sweetening units
- New developments in analyzers for continuous monitoring of H₂S in gas streams
- New developments in tube sheet linings
- Novel approaches to sour well testing
- Digital platforms to improve SRU reliability, performance and reduce operating costs

Please visit www.sogat.org to view the full programme of which 80% plus of the presentations are case studies from operators' experiences.

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Exhibitors include Energy Recovery, Huntsman, OHL Gutermuth Industrial Valves GmbH, Al Hosn Gas, DOW, Worley Parsons, Sulphur Experts, John Zink Hamworthy and many more. Please visit www.sogat.org/exhibition to review the shell scheme, floor plan and availability.

For further information on all aspects of SOGAT 2017 and to reserve your delegate places please refer to www.sogat.org or contact **Nerie Mojica** at:

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Optimising well performance

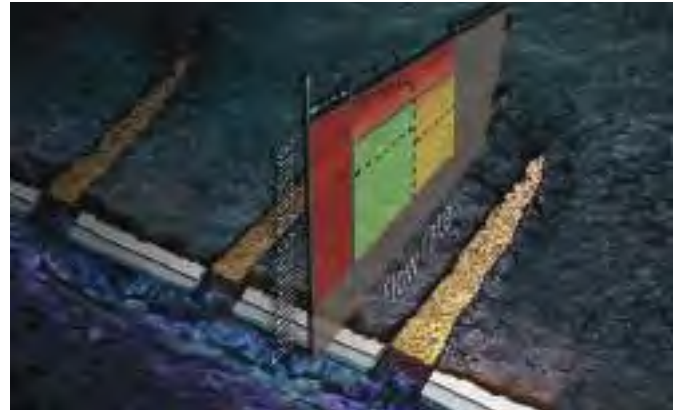
New services from Schlumberger integrate modelling with monitoring and control to optimise productivity in fractured wells.

SCHLUMBERGER INTRODUCED ITS AvantGuard* advanced flowback services at ADIPEC, which optimise well performance from post-stimulation operations through production. These services protect the connection of the hydraulic fracture to the wellbore to optimise productivity in conventional and unconventional wells.

AvantGuard services comprise flowback design and proactive fracture protection that complement fracturing operations. Damage to the well and the formation is actively prevented by tailoring a predictive flowback design strategy with a defined secure operating envelope. Application of the flowback design during the transition to production protects and stabilises hydraulic fractures to efficiently enable all the clusters in each zone to produce without productivity impairment.

The AvantGuard service is adapted to the well's specific geological, geochemical and geomechanical environment. The resulting flow is continuously monitored using Vx* multiphase well testing technology to accurately capture the rapid transient changes of produced fluids and sand content during early flow in the life of the well. This level of control begins during coiled tubing millout as the dynamic fluid and solids rate information is transmitted in real time to the coiled tubing unit to guide managing injection, return rate and pressure and optimise the balance condition.

"While this technology applies to both conventional and unconventional wells, our primary focus now is the unconventional market, where there is a lot of activity, especially in the Middle East. There is a great interest in this technology from the region," said Dr Dmitry Potapenko with Schlumberger at ADIPEC. In the current cost-constrained environment it is a good time to launch the



AvantGuard services are based on the application of the secure operating envelope, which is a combination of operational parameters that preserve the connection between hydraulic fractures and the wellbore

technology, with its focus on optimising well productivity, he added.

A key benefit is the ability to predict damage, he stressed. "Avant Guard advanced flowback services is a much-needed technology; we can predict when damage will occur and can avoid this damage by operating the well within the secure envelope. This is a big difference compared with conventional methods, which identify damage only after it has taken place. This is irreversible and normally there is nothing you can do to correct the well impairment. In contrast, with this technology you can predict conditions, and therefore proactively avoid damage, by resetting the operational boundaries.

"We are currently applying this service in more than 50 wells, primarily in the USA, in the Permian Basin, Eagle Ford and Haynesville shale, and have seen very good results so far." ■

* Mark of Schlumberger



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Improving asset management with Cloud solutions

Rafi Hattar, vice president MIA, Intergraph® PP&M, discusses how Cloud technology can help industry leaders to optimise operations.



Rafi Hattar

OWNING AND OPERATING a process plant today means having to deal not only with low commodity prices and low margins, but also with more complex projects and regulatory demands. Handover from ongoing operational changes and projects results in information that is critical to efficient plant operation, but hidden amongst an ever-increasing volume of drawings, documents, spreadsheets and other unstructured formats. This approach wastes money at a time when resources are constrained. Cloud-based solutions, such as Intergraph® Process, Power & Marine's SmartPlant® Cloud, can help to improve operational efficiency and make projects more manageable.

Lately, we have seen a worrisome trend

where both plant operational efficiencies and projects are unable to meet the tight margins required to be profitable in today's environment. The fact that unplanned downtime often exceeds planned downtime in an operating plant, or that over 50 per cent of projects fall behind schedule or significantly exceed budget, despite being managed professionally, underlines the scale of the difficulties.

“ A central data repository in SmartPlant Cloud can help to avoid incompatibilities.”

Consistency and communications

Simple and consistent communication of the engineering design basis is a major contributor to avoiding costly overruns in an operating facility or a project. This sounds obvious; however in most facilities this is still not the norm.

To maximise efficiency, effectively improve communication, and to avoid costly operational updates and project handovers, many plant operators (OOs) and EPCs are moving towards a cloud environment. By bringing the engineering data required to support operational changes and projects into SmartPlant Cloud, a shared environment for OOs, EPCs and suppliers, you automatically get consistent data which is always up-to-date. Essentially, it is about taking the






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SmartPlant software suite normally run on multiple local servers in each party's computer room, and running it on one centralised set of cloud servers.

A central data repository in SmartPlant Cloud can help to avoid incompatibilities, or partners accidentally working with the wrong revision of data. It can also reduce the number of documents required for a project by around 20 per cent, significantly reducing costs in a project and improving operability of a plant. Other solutions included in the Cloud, such as SmartPlant Fusion, can help owners to quickly find, capture, organise, link, and visualise large volumes of engineering data and documents that have been created over the facility lifetime.

To improve further the operator access to critical operational data, the cloud system also interfaces with SAP via bidirectional data exchange. Consequently, design data, visualisations, technical documents, work orders and operational information are all consistent. This makes it easier to manage the plant / project and identify any problems at an early stage. Later, the operational teams can use the same data, thus ensuring data consistency and improving plant safety throughout the lifecycle of a facility.

Together with Fluor, Intergraph PP&M held a webinar on cloud solutions for a large joint venture project, and the key findings included that major challenges exist to "ensure effective data exchange across parties" (48 per cent) and "initiation and implementation of projects" (32 per cent). SmartPlant Cloud was seen as an enabler to address these items, helping to save time and costs, and ensure consistency between all the joint venture partners and their suppliers.

Reducing security risks

Most companies consider outside hackers as the biggest security threat. Consequently, most companies feel comfort when they manage access to engineering, operational and project data, but statistics show this is not always the best approach.

According to the 2015 Data Breach Industry Forecast by Experian, almost 60 per cent of security incidents were caused by employees. When you include vendors, suppliers, contractors, and partners, the risk grows. SmartPlant Cloud reduces this risk of a negative security incident by adopting an industry-leading commitment to ISO 27001 and protecting data with strong user compliance and governance.

Controlling access in SmartPlant Cloud is straightforward, hence everyone has access to the data relevant to them, but no more. For example, an instrumentation engineer might have full access to the instrumentation data, but view-only access to a limited part of the electrical engineering data. This central access management is particularly convenient when there are changes in personnel,



SmartPlant UI - easy to use interface means that Cloud data is always in reach

contractors, during turnaround planning, or when a project moves between phases. Furthermore, the backup and disaster recovery strategy also protects data confidentiality, integrity and availability in case of an event.

Reduced IT management effort

SmartPlant Cloud is a full service offering, effectively reducing IT overheads. It includes a backup and disaster recovery, 24/7 support and optimised start up with a focused Hypercare programme, whilst service level agreements guarantee a fast response time to any issues identified by the customer. The solution also means that projects can be set up in days rather than months, without an investment in hardware, software, or networks. Again this takes a burden off the in-house IT teams.

“Controlling access in SmartPlant Cloud is straightforward, hence everyone has access to the data relevant to them, but no more.”

The solution can be configured quickly and it ensures that all project members use the same data structures and document conventions. These features enable owner operators and their partners to focus on their core business, and not be distracted by IT and data management issues. All that an end user needs to work with SmartPlant Cloud is an internet connection and a device (PC, Mac, Linux, tablet, etc.) which can run Citrix Receiver software.

As for performance, the solution runs from data centres and regional points of presence to provide a low latency and excellent user

experience. As a result, even graphical intensive applications such as Intergraph Smart™ 3D perform as well as they would on premises. This excellent functional performance with pay-as-you-use pricing makes IT costs more transparent and easier to manage. In essence, the cost follows the workload. This enables companies to avoid capital expenditure on resources which are not fully used.

Ensuring compliance

Owner operators have spent significant effort and dollars trying to ensure that corporate standards and processes are adopted across their organisations, facilities and projects. The success in compliance to and adoption of these corporate standards is yet to be fully realised.

One of the drivers for the development of SmartPlant Cloud was the need for our customers in the process, power and marine industries to demonstrate regulatory compliance and to lower operating costs. They felt that effective communications, adherence to standards, and data integrity were key to achieving this, and were looking for a solution. Basically, they needed to provide shared working areas, using the company standard SmartPlant-based set up to improve schedule, quality, safety, and lower budget and risk.

SmartPlant Cloud has been well received by the market. It has not only been adopted by owner operators and EPC contractors, but also by service providers such as project management consultants. Leading companies such as Shell, Fluor, ENI, Burns and McDonnell, and JGC are now using SmartPlant Cloud to get the best from their data and use it efficiently, without significant investments in IT. Under the current market conditions that is just what they need to reduce costs and compress schedules while at the same time improving safety. ■

For more information, please visit ppm.intergraph.com.

Ultrasonic technology for reliable ship maintenance

Ultrasonic technology (UT) is rapidly proving to be the most reliable, accurate and effective alternative to traditional methods of watertight integrity testing on ships, says Carl Stephen Patrick Hunter, CEO and managing director, Coltraco Ultrasonics.



Testing for watertight integrity is an important part of ship maintenance

TESTING THE WATERTIGHT / WEATHERTIGHT integrity of hatch covers is an imperative part of ship maintenance, to ensure the safety of vessel, crew and cargo. A leak in a hatch cover or watertight door can lead to water ingress which could cause vessel damage, cargo damage and ultimately pose a risk to human life through flooding and the potential for capsizing. Most commonly, water ingress through hatch covers with low watertight integrity has damaged valuable cargo held inside the ship. This is demonstrated by the fact that 33 per cent of large insurance claims in general cargo and bulk carrier vessels are caused by leaking hatch covers.

The risk is worsened by the ageing nature of many bulk carrier ships in particular. There

is also a degree of bending/deformation that naturally occurs in ships during travel, which puts pressure on hatch covers and can damage sealing. A recent wave of inexperienced crew members has swept across the shipping industry as a cost-saving mechanism, leaving vessel maintenance and

“ 33 per cent of large insurance claims in general cargo and bulk carrier vessels are caused by leaking hatch covers.”

hatch cover testing to decrease in quality.

While hatch covers are often perceived as indestructible due to their large size and bulky exterior, in reality they are complex, finely made structures that need to be handled with care, a point that many mariners do not realise. For example, a 4mm wear on the steel-to-steel contact is sufficient to damage rubber sealing gaskets beyond repair.

The limitations of current watertight integrity tests

Traditionally, the most common ways of checking critical seals are high pressure hose or chalk testing. During chalk testing, chalk is applied to the compression seals and the hatches are closed, sealed and reopened. The compression seals are then examined

and if there is any irregularity in the chalk pattern then the assumption is made that improper sealing is occurring in that section of the seal. As this gives no indication of the water pressure necessary for hatch cover failure, this method must be accompanied by hose testing. During high pressure hose testing a surveyor is present inside the hold. A jet of pressurised water is aimed all the way round the hatch cover to ensure all seams are tested. Any water ingress which occurs will be seen by the surveyor.

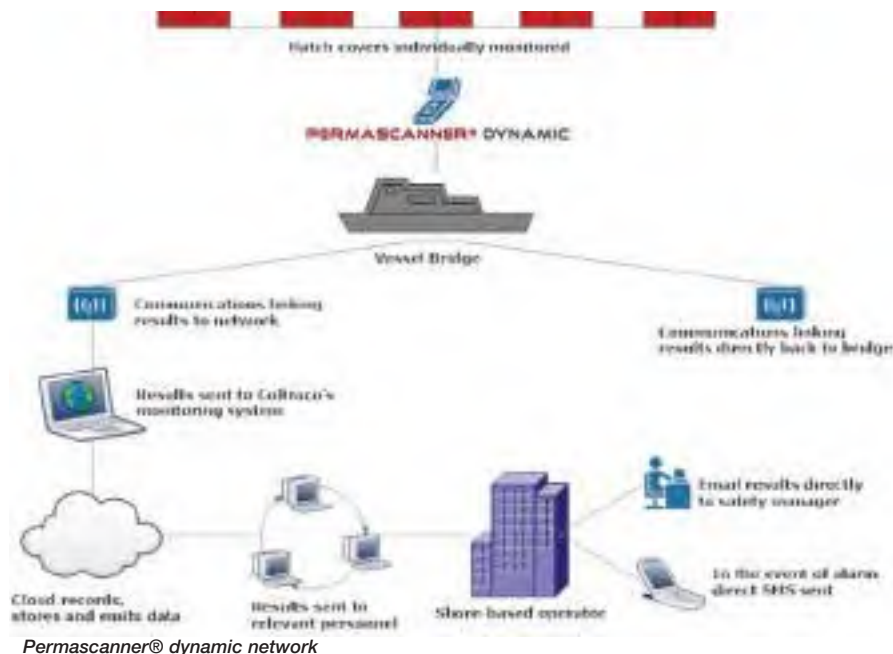
There are severe limitations to these methods, which are widely acknowledged across the shipping industry. The hose test is time consuming and inefficient, requiring two crew members for testing. The test is often performed incorrectly, or whilst the cargo is in situ, placing cargo at risk. Pollute run-off has raised environmental concerns and hose testing is now prohibited in many ports, reducing the likely frequency of testing. Most importantly, these methods are fundamentally inaccurate and thus ineffective. Hose testing relies on subjective variables such as distance, and provides almost no indication of the severity and/or location of leaks, nor does it provide recordable, verifiable readings. During chalk testing even if seals are touching there is no way of indicating if there is sufficient pressure between them to create a complete seal.

The benefits of ultrasonic technology integrity testing

Developed specifically to solve the issues outlined above, testing models using ultrasonic technology are proving to be the most accurate alternatives to traditional methods for hatch cover maintenance.

Ultrasonic technology is being rapidly adopted as a safe, easy and reputable method of identifying seal leak sites in a highly accurate and convenient way. UT is utilised in the form of portable ultrasonic watertight integrity test indicators for inspecting hatch covers in the shipping industry. The use of UT can expand to include testing of W/T doors, multiple cable transits, scuttles, shell doors, flanges, bulkheads and other watertight compartments on multiple vessel types, offshore and in defence. Generally, UT equipment is comprised of two main components: a generator and a receiver. The ultrasound generator emits a modulated signal of a specific frequency of ultrasound (in most cases 40,000Hz). The receiver then picks up the signal and converts it into a result indicating watertight (or weather tight) integrity.

The equipment is portable, easy to use and requires only one individual for testing. Contrary to a common misperception that use of ultrasonic equipment requires extensive training, many new models can be used by any crew member who oversees the ship's maintenance in transit and/or the shore-based safety operator. This ease of use allows for



more regular testing which will improve vessel, cargo and crew safety, ensuring preventative maintenance procedures are taken on board. Moreover, this technology is clean, non-invasive, non-destructive, non-harmful and does not violate any environmental codes, which also means there are no IATA transportation restrictions.

The use of UT can provide a data recordable audit trail, which can prove vital for insurance companies should a claim have to be made. Moreover, creation of recordable, comparative results is a quantifiable method of ensuring the long-term safety of a vessel.

“Coltraco is looking to see this technology fully utilised by 2020.”

Most importantly, using UT can not only provide an indication of how secure a hatch cover is, but can also show the precise location of any leakage sites, and is of unmatched accuracy. Coltraco's Portascanner® Watertight, for example, is proven accurate to 0.06mm \pm 0.02. Research carried out by Coltraco showed that 'a linear relationship was found between signal leakage out of a certain sized hole (in a watertight box) and the quantity of water able to enter that hole'.

The current and future importance of UT

As well as hatch cover testing, the application of UT extends to testing manway access, ventilation inlet and exhaust covers, tanker tank access man-ways, ullage covers and various deck accessed lockers. UT offers flexibility by its ability to test both large

bulk carrier holds of up to 45,000 sq m, right through to multiple cable transits in very small locations.

However, there are issues which need to be addressed. The main issue is that without continuous ultrasonic monitoring, a leak could still occur at any point in between tests during a journey, and a crew member is still needed for testing. Research is being carried out by enterprises such as Coltraco to create the most comprehensive and safe model using ultrasonic technology. Current technologies available to provide continuous ultrasonic watertight monitoring include Coltraco's fixed ultrasonic system called Permascanner® Hi-Life. Currently this system consists of a generator with a minimum 10 day continuous emission i.e. a possible voyage of 3000NM (nautical miles), which allows testing of seals at sea by a manual operator during calm to mild sea conditions. Permascanner® Hi-life is the first step in remedying problems, however there are still limitations. Permascanner® Dynamic is a comprehensive, autonomous continuous monitoring system for the watertight integrity of a ship's cargo hatches, weathertight doors and other seals. This model is capable of automatically detecting emerging leak sites, alerting officers and crew to the location and severity of the leak site and logging all data by hatch cover for future review. Coltraco is looking to see this technology fully utilised by 2020, as part of a pioneering wider vessel system integration and shore-based data management.

It is becoming clear that UT is developing into an integral component of water tight integrity testing for ship hatch covers in particular, and is best positioned to secure the safety of vessels in the shipping industry. There is more work to be done, and the future of UT must be condition-based monitoring of hatch covers, providing continuous monitoring. ■

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DMCA signs maritime innovation co-operation agreement with DNV GL

DUBAI MARITIME CITY Authority (DMCA), the government authority charged with regulating, coordinating and supervising all aspects of Dubai's maritime sector, announced the signing of an agreement with DNV GL at the DNV GL National Committee on November 15, 2016, to collaborate on several maritime innovation initiatives. The agreement was signed in Dubai between Amer Ali, executive director of DMCA, and Knut Ørbeck-Nilssen, CEO DNV GL Maritime.

The new partnership aims to facilitate DMCA's aspirations to make Dubai a first-class international maritime gateway by investing in research and innovation and mutually sharing knowledge and experiences on the latest shipping technology, as well as developments in environmental, safety and quality concerns. The agreement will set the framework for both organisations to determine key areas of collaboration.

Amer Ali said, "DMCA's collaboration with DNV GL is part of our long-term vision for Dubai to become a world-class maritime gateway. Innovation, research and technology are certainly essential factors for DMCA to provide an internationally-recognised maritime cluster and enhance the sector's efficiency and global competitiveness. In navigating through this path, it is important that DMCA establishes the right tools and methods in order to manage the impact as well as the opportunities that new technologies present to us."

"We are very positive that DMCA's collaboration with DNV GL is the right next step to push Dubai's drive in promoting the Emirates' position on the global maritime map and soon play a leading role in providing a sustainable platform for the global maritime sector. With

DNV GL's competence and extensive experience, we believe Dubai is on track in establishing a sustainable maritime environment following highly-regarded international standards," Ali concluded.

DMCA and DNV GL will explore initiatives that will further advance the Dubai maritime sector's technological capacity in areas such as smart shipping, digitalisation, big data and real time information management. The agreement also looks to promote maritime innovation programmes in Dubai, the UAE and in other parts of the Middle East. DMCA and DNV GL will also involve local universities, higher education institutes, research organisations and other government bodies in Dubai and the UAE.

Meanwhile, Ørbeck-Nilssen expressed his delight in the establishment of a new partnership to support Dubai in maintaining a leading position among the world's maritime centres. He commended DMCA's efforts to make the local maritime sector a pivotal player in the international maritime arena, saying "Dubai Maritime City Authority is taking a major step forward in terms of creating a highly competitive maritime environment with the ability to keep pace with regional and global changes. We are confident that our cooperation will yield positive results and further enhance growth and innovation in the local and regional maritime clusters, ensuring the highest standards of safety and quality."

DNV GL, an international classification society headquartered in Norway, is globally recognised for its expertise in helping companies manage risk in the maritime industry, especially in safeguarding life, property and the environment and ensuring safety and sustainability within the sector.

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World's first unmanned and fully-automated vessel for offshore operations planned

THE UK'S AUTOMATED Ships Ltd and Norway's Kongsberg Maritime have signed a Memorandum of Understanding to build the world's first unmanned and fully-automated vessel for offshore operations.

The 'Hrönn' which will be designed and built in Norway, will be a light-duty, offshore utility ship servicing the offshore energy, scientific/hydrographic and offshore fish-farming industries. Its intended uses include, but are not limited to, survey, ROV (Remotely Operated Vehicle) and AUV (Autonomous Underwater Vehicle) launch and recovery, light intermodal cargo delivery and delivery to offshore installations, and



Artist's impression of the 'Hrönn'

open-water fish farm support. The vessel can also be utilised as a standby vessel, able to provide firefighting support to an offshore platform working in cooperation with manned vessels. Automated Ships Ltd is currently in discussion with several end-users that will act as early-adopters.

Hrönn will initially operate and function primarily as a remotely piloted ship, but will transition to fully automated, and ultimately autonomous operations.

Automated Ships Ltd will be the primary integrator, project manager and ship-owner, while Kongsberg will deliver all major marine equipment including systems for dynamic positioning and navigation, satellite and position reference, marine automation and communication. All vessel control systems including K-Pos dynamic positioning, K-Chief automation and K-Bridge ECDIS will be replicated at an onshore control centre, allowing full remote operations.

"The advantages of unmanned ships are manifold, but primarily centre on the safeguarding of life and reduction in the cost of production and operations; removing people from the hazardous environment of at-sea operations and re-employing them onshore to monitor and operate robotic vessels remotely, along with the significantly decreased cost in constructing ships, will revolutionise the marine industry," said Brett A. Phaneuf, managing director of Automated Ships Ltd.

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ADIPEC 2016 consolidates position as top meeting place

Movers and shakers in the energy business addressed challenges and opportunities facing the industry, cementing ADIPEC's position as a global knowledge-sharing platform.

THE ABU DHABI International Petroleum Exhibition and Conference (ADIPEC) attracted 8,500 delegates, 2,000 exhibiting companies, 700 speakers, and over 95,000 visitors from 135 countries, bringing the world's decision makers, industry leaders, and experts under one roof to address the most critical issues surrounding the evolving energy landscape.

Held under the patronage of HH Sheikh Khalifa Bin Zayed Al Nahyan, President of the UAE, ADIPEC 2016 surpassed last year's numbers in both size and content, spanning 135,000 gross square metres of floor space, and featuring more than 160 conference sessions – from the high-level ministerial and global business leader sessions, to the dedicated Offshore and Marine and Women in Energy sessions.

Keynote speakers at ADIPEC's Conference Programme included C-suite executives from national and international oil giants, including ADNOC, ExxonMobil, Total, BP, Gazprom, Oxy, Qatar Petroleum, ENI, and Wintershall.

Delivering the keynote address at the opening ceremony, H.E. Dr Sultan Ahmed Al Jaber, UAE Minister of State and ADNOC Group CEO, said that in an era of unpredictable oil prices, producers who focus on efficiency, value creation, commerciality and excellence will be successful. By driving efficiency and leveraging synergies, oil and gas companies can succeed in the new energy era, he stressed, but sound, strategic, targeted investments are equally important to enable sustainable growth.

"Today's new energy landscape calls on us to once more to break from old conventions and welcome new paradigms."

H.E. Suhail Mohammad Faraj Al Mazrouei, UAE Minister of Energy, said, "Continuous industry developments, combined with a rapidly evolving global economy, are creating an increasingly competitive world energy market. This makes it essential that we leverage research, technology, and innovation to optimise both



ADIPEC 2016 attracted more than 95,000 international visitors

the exploration and production costs of every barrel that we produce. I am confident that with our collaborative efforts, and by working both harder and smarter, we can help create a sustainable energy future for generations to come."

H.E. Mohammed Barkindo, OPEC secretary general, highlighted findings of OPEC's 2016 *World Oil Outlook*, launched at ADIPEC, which sees global oil demand increasing from around 93mn bpd in 2015 to over 109mn bpd by 2040, with demand for natural gas increasing from close to 350bn scf a day in 2015 to 590bn scf a day.

All this will require huge investments not only to increase production, but also to accommodate for decline rates from existing fields, he said.

Reg W. Tillerson, CEO and chairman of ExxonMobil, urged closer collaboration between international oil companies and national oil companies, which would boost profitability whilst enabling countries to meet their environmental obligations.

"Today's environment requires strong partnerships to ensure that there is an incentive to make significant, sustained investment in the research, development and deployment of new technologies to meet the

energy demand challenge."

The ADIPEC Technical Conference Programme covered topics ranging from Exploration and Production to Operational Efficiency. The event also celebrated the inaugural edition of the 'Security in Energy' exhibition and conference, addressing the ever-growing challenges in today's increasingly interconnected energy landscape, as well as the launch of the annual Young ADIPEC Forum, a series of TED-style talks designed to inspire the next generation of energy professionals.

Jean-Philippe Cossé, vice-president – Energy at dmg events, said, "ADIPEC continues to provide a platform for conversation and dialogue within the energy industry. Each year, to support the conference content, we are fortunate to have more than 2,000 exhibiting companies that showcase and present the latest technologies and solutions."

ADIPEC 2016 featured 25 country pavilions including major oil producing countries, such as the USA, Saudi Arabia, China, and Russia, as well as emerging markets, such as Indonesia, Malaysia, and Spain, marking the largest international participation in ADIPEC's 32-year history. ■

Addressing oil and gas challenges

Rockwell Automation showcased its ConnectedProduction™ solution at ADIPEC 2016.

THE OPPORTUNITIES FOR improving existing plant in the data-driven age are extensive, with the development of tools such as process surveillance technologies, data analysis engines and applications, and workflow optimisation techniques. New controls, drives, and safety enabled technologies play a part, while remote management of assets becomes a reality. Importantly, all of these tools can be comprehensively connected at enterprise-level collaboration platforms, which leverage open-source communications protocols to offer real-time and historical information for improved decision making. The result is safer, more efficient, and more productive facilities.

In the current cost-conscious environment, oil and gas companies need enhanced access to data for improved decision making, resulting in productivity enhancements. At ADIPEC 2016, Rockwell Automation explained how production can be visualised and controlled from the wellhead to the point of custody transfer, either on site or from miles away, with its ConnectedProduction™ solution. This represents an extension of the company's Connected Enterprise approach to automation solutions in other sectors, which takes advantage of advances in technologies such as open-

“ ConnectedProduction solutions are the way forward and will be our focus in 2017.”

standard IoT devices, big data and analytics, virtualisation and mobility, and cloud computing.

Industry and technical specialists from Rockwell Automation highlighted technology and solutions to optimise production processes, increase efficiency, maximise profits and reduce costs, with a focus on oilfield automation. The company's solutions cover areas of production automation including artificial lift, chemical injection systems, power control and measurement, as well as turbomachinery and pump controls.

A focus at ADIPEC were solutions for upstream monitoring and control such as the OptiLift™ gas lift (GL) system which automatically senses and controls the wellhead variables of a gas lift production site, adjusting the gas lift injection flow to match an operator-determined flow rating and computing the estimated gas, oil and/or water production in real time. A centrally

located computer allows personnel to easily gather communication and results for analysis, such as trending of flow data which can be useful in the early detection of well problems.

Another example was the OptiLift electric submersible pump (ESP) system, which senses and controls the wellhead and the other operating variables of an ESP system on site, providing access to real-time data, both at the well site and remotely. It performs basic initial analysis to adjust the pumping conditions and keep the system working efficiently.

Simultaneously, the data is recorded and can be easily gathered for further analysis. Intelligent alarms provide real-time well problem alerts.

Also showcased was the OptiSIS® pre-engineered safety instrumented system, which can help ease deployment and reduce lead times for small and mid-sized process applications. It focuses on configuring safety functions and is an ideal solution for diverse SIS replacement or upgrade projects, employing a single common solution.

Visitors to the Rockwell Automation stand could also see how the PlantPax® modern distributed control system (DCS) integrates process, power, safety and critical control in a single unified platform, driving productivity and increasing process efficiencies.

“ConnectedProduction applications are the way forward and will be our focus in 2017,” said Neil Quadros, field marketing specialist, Gulf & Near East, Rockwell Automation. “Oil companies are looking at how they can manage their existing operations, such as obsolete plants and obsolete manufacturing units. Lifecycle management and upgrades is one area we're looking at.

“Our vMonitor digital oilfields solutions have been very well received in the region and we have successfully implemented solutions for customers such as KOC, PDO and ADCO; we have some good installed bases. The Middle East is a market which has always accepted new trends such as IoT; that's the way things are going. With ConnectedProduction we can integrate smart assets like our vMonitor and DCS solutions into a complete package for end-users and customers.” ■



The Rockwell Automation stand at ADIPEC

Leading in passive fire protection

Philippe Fouques, regional Jotachar business development manager at leading paint manufacturer Jotun, speaks to *Oil Review* about its new mesh free epoxy passive fire protection coating developed specifically for the onshore hydrocarbon processing and energy industries.

SINCE THE ESTABLISHMENT of its presence in the Middle East in 1974, Jotun has expanded dramatically throughout the region, and now has state-of-the-art manufacturing facilities in Abu Dhabi, Dubai, Saudi Arabia, Oman, India, Egypt and South Africa. The first paint manufacturer to be awarded the IOS 9001:2008, ISO 14001 and OHSAS 18001 certification, Jotun has been at the forefront in terms of developing products specifically suited to local conditions, and now produces a variety of conventional and specialised coatings incorporating the latest technological developments whilst offering performance with economy. These include decorative, protective, marine, floor/concrete protection, powder coatings, passive fire protection and thermal barrier coatings.

New product boosts growth prospects

Jotun has seen its growth prospects in the Middle East and the wider region boosted by the launch this year of its Jotachar 1709 mesh free epoxy passive fire protection coating developed specifically for the onshore hydrocarbon processing and energy industries.

Jotun's new product, which has been designed to protect steel against hydrocarbon pool fire scenarios for up to four hours, as defined within the ANSI/UL1709 Standard, builds on the technology platform behind the company's successful Jotachar JF750 mesh free epoxy passive fire protection coating for the onshore and offshore industry. It offers significant benefits for operators compared with traditional passive fire protection solutions, such as reduced installation time, reduced lifecycle costs and the elimination of risks associated with mesh installation errors.

Fouques comments that the product has been very well received in the region. "We have very big projects in Abu Dhabi with ADMA-OPCO and ADGAS, and now we are starting to get jobs in Iraq and Nigeria. Our next focus is India.

"This product is all about safety, and this is a market which is suffering less from the downturn because you have to have it, so this is an advantage for us," he continues. "In addition to the safety benefits, our technology delivers time savings, helping in terms of installation flexibility and the construction process, as our solution is easier and faster to apply; you are free from all the rules that dictate installation of mesh. And the fact that it conforms with the regulations means you have peace of mind as well."

“If you do a lifecycle cost analysis, you will see the benefits.”



Philippe Fouques, regional Jotachar business development manager, Jotun

Fouques sees many opportunities for the new onshore-focused product and explains that it offers long-term benefits compared to cementitious-based PFP products, which are cheaper but less durable than epoxy. "If you do a lifecycle cost analysis, you will see the benefits," he says.

Jotun is working hard to promote the product to a wide range of end users, from NOCs such as ADNOC and its subsidiaries, to the major engineering and construction companies.

"We have had a lot of interest at ADIPEC; this is the third year that we have exhibited Jotachar, with the addition this year of the new line intended for the onshore industry," says Fouques. The region's attitude to innovation can be a challenge, he remarks. "Here, they are looking for a five year track record - but that is understandable given the sensitivities surrounding the issues of finance and safety. We are getting there; we've gained a track record, and people see the value of simpler solutions."

Fouques is optimistic about future prospects despite the impact of the downturn. "We are dependent on the oil and gas construction markets, and have seen the effect of reduced investment, but at some stage we're going to see an upturn, and that's going to open up opportunities. As things are now, there are still ongoing projects, and we are continuing to actively promote this range of products." ■

Diversity important for Kerui Petroleum to maximise opportunities

KERUI PETROLEUM, A provider of oilfield engineering services, turnkey contracting services and petroleum equipment, is using a strategy of diversification to remain competitive, according to Andy Leng, the company's vice-president.

Speaking at ADIPEC 2016 in Abu Dhabi that took place from 7-10 November, Leng said the financial climate has created "opportunities to change strategies", including taking a localised approach in the countries where they operate.

"We are serving local companies and creating local jobs, of course," he told *Oil Review Middle East*.

In the Middle East region, the head office is in the UAE and four years ago, a joint venture was established to form an Omani subsidiary of Kerui Petroleum. In January 2016, Kerui Petroleum was awarded a certificate to acknowledge the company's role in Oman's development by the Oman Society for Petroleum Services. Kerui Petroleum also operates in Saudi Arabia with a base in Dammam and Turkey with a base in Izmir.

Kerui Petroleum also employs 200 people in the southern part of Iraq, providing service teams to three oilfields. Operations were suspended in northern Iraq in 2009 but Leng said, "I hope it will come back."

Mr Leng described the African market as important to Kerui and praised the Chinese government for facilitating their work in the continent with financial support. Egypt, Algeria, Libya, Gabon and Nigeria are all significant markets for the company.



Andy Leng, vice president, Kerui Petroleum

Kärcher showcases UHP cleaners

KÄRCHER, A LEADER in innovative cleaning technology solutions, showcased its WOMA ultra-high pressure (UHP) cleaners and pressure washer HDS trailers at ADIPEC.

"High pressure cleaners take us to a new level of industrial maintenance and cleaning, with numerous applications both upstream and downstream," said Mazen Abu Chakra, export sales director at Kärcher, who commented that the cleaners are very popular in the Middle East.

The machines are effective cleaners of heat exchangers, pipes, condensers and air coolers, as well as for washing away sludge, and paint stripping. Regular cleaning using the WOMA UHP machines reduces losses in costs and increases efficiency, according to the company. The use of the WOMA UHP and the explosion proof high pressure cleaners in pipe cleaning removes the built-up sulphite, salt, and limestone deposits.

UHP cleaners also have a variety of applications in other industrial sectors, for example in cleaning runways, said Abu Chakra, and the technology can also be used for cutting materials such as steel, pipes and glass.

Kärcher reports that the WOMA machine and the pressure washer HDS trailers generated a positive response at the show, with more than 75 prospective leads generated at the event.

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Bin Quraya plans expansion, showcases strength at ADIPEC



Bin Quraya's fleet has over 300 cranes, all certified by Saudi Aramco.



Hamad Awad Bin Quraya is the executive vice-president.

A family-owned company from Saudi Arabia, Bin Quraya showcased its project portfolio at ADIPEC 2016 from 7-10 November in Abu Dhabi, the UAE.

The company was founded originally 40 years ago with its EPC (Engineering, Procurement & Construction) division servicing Saudi Aramco, and has now expanded into heavy equipment rental, rig move, plant shutdown in addition to pipeline construction. According to Hamad Awad Bin Quraya, executive vice-president, the company has the biggest mobile crane rental fleet in the Middle East region.

Giving an insight on the oil and gas sector from Bin Quraya's perspective, he noted that the outlook for the sector seems optimistic. "We have seen signs that the industry is bouncing back and projects that had been halted due to falling revenues have started

again. Bin Quraya has been involved in many projects in the Kingdom – including major natural gas pipeline expansions and Aramco-led projects in Khurais and Shayba. We think the next few years will see a major upsurge, and we believe that this downturn has caused companies to optimise, which is a good thing in the long term."

This optimism was reflected with Saudi Arabia recently launching five mega oil and gas projects – Wasit Gas Plant, Manifa oilfield, Shaybah natural gas liquids, Shaybah oil increment and Khurais oil increment – in line with the Kingdom's development objectives outlined by Vision 2030.

Talking about Bin Quraya's expansion plans in the region, the EVP said that the company is already opening a wholly-owned subsidiary in Kuwait, to start operations in 2017; and is planning to invest heavily in the

UAE, starting with a number of new companies in Abu Dhabi and Dubai in 2018. "That is why we are here – to meet clients, network and showcase our strengths."

Earlier this year in April, Bloomberg had reported that Shaybah's expansion will help Saudi Aramco keep the company's capacity at 12mn bpd.

Bin Quraya possesses a fleet of over 300 cranes, all with Saudi Aramco certifications, ranging from 20 tonnes to 500 tonnes. Continually purchasing new cranes and increasing its fleet, BQ Rental is planning to purchase a 1,000-tonne crane in 2016.

Bin Quraya's growth rate over the last 10 years has been very intensive in order to meet the demands of its clients. The heavy equipment fleet totals more than 250 pieces of equipment (other than cranes), not to mention the equally large BQ Rig Move truck fleet, and the highly trained and certified workforce of more than 3,500 personnel.

AkzoNobel announces local manufacture of its latest passive fire protection product

AKZONOBEL HIGHLIGHTED ITS cutting edge solutions, which contribute to the operational efficiency and safety of the oil and gas industry, at ADIPEC 2016. The company also focused on its localisation strategy with the launch of Chartek 2218 epoxy passive fire protection product, which is manufactured in Saudi Arabia.

The new product is aimed at onshore oil, gas and chemical projects.

Talking about AkzoNobel's specialised products, Andrea Meconcelli, director performance coatings, AkzoNobel Middle East, says, "Among our specialised products for the oil and gas industry is Chartek 2218 epoxy passive fire protection, which helps our clients to achieve unprecedented levels of savings. It allows for an increase on steel throughput of up to 300 per cent per day compared to cementitious fire protection products, and 50 per cent compared to any other epoxy fire protection product, translating into huge savings for our customers. This is particularly relevant at a time when cost savings are paramount in the oil and gas industry.

"We see demand for coatings solutions continuing to be robust given the importance they play in asset protection and safety."

Pointing towards the company's strategy in these 'difficult times', Meconcelli feels that the current economic climate is an opportunity for oil and gas industry stakeholders to focus on strengthening their asset protection initiatives. "The largest opportunity is to achieve higher productivity leaps through the use of efficient technologies. With governments upbeat about oil prices having bottomed out, the industry can emerge stronger through a focus on three key factors – efficiency improvement technologies, innovation and localisation."



Visitors at AkzoNobel stand at ADIPEC 2016

With regards to expansion plans in the Middle East, he reveals that AkzoNobel's commitment to the region is to promote localisation. "With Chartek 2218, we are delivering a 'Made in Saudi' product. We focus on being closer to our customers and our Dammam plant has the required UL certification. Successful localisation also strengthens our supply chain capability and customer focus, and is another landmark in our ambition to bring AkzoNobel's global technology to the Middle East region." Meconcelli notes that nearly 60 per cent of AkzoNobel products are used in buildings, infrastructure and transport. Therefore, driving localised manufacturing helps the company identify the real needs of its customers in the region, and offer innovative solutions that meet their requirements.

Findings of Women in Energy survey released at ADIPEC

ADIPEC AND A.T. Kearney revealed the preliminary results to their Women in Energy survey on female employment in the energy sector at ADIPEC, which is based on responses from 732 respondents from across the globe.

Women remain underrepresented in the energy sector, accounting for only 19 per cent of the energy workforce, less than one per cent of CEOs and 11 per cent of senior roles, according to the World Economic Forum Industry Gender Gap report.

The ADIPEC/A.T. Kearney preliminary survey finds that the three main factors hindering the participation of women in the energy sector are social and cultural pressures, work-life balance, and the fact that the industry is male dominant. Social and cultural pressures, for example, can be a barrier to women working in the field in the oil industry in the Middle East.

Lack of infrastructure is also a barrier. "In the Middle East facilities for women often do not exist – for example on offshore rigs," said Ada Perniceni, partner at A.T. Kearney.

A particularly striking finding of the survey is that only 27 per cent of women think that women have access to the same career opportunities as men, whereas 58 per cent of men believe they do.

"There is a big perception gap, which is also something that hinders women in the workforce – men don't realise the difficulties that women face," commented Perniceni.

Many Middle East NOCs have been supportive of advancing women in the oil industry. ADNOC for example has announced it is seeking to appoint at least one female CEO within its group of operating companies and has set a target to ensure that 15 per cent of senior managers will be women by 2020.

Closing the gap is a shared responsibility between government, companies and society, the survey finds.

More family and society encouragement, greater awareness on STEM studies and related career opportunities, and more focus on science and maths during primary education are the top three initiatives needed to increase the number of female graduates in STEM (science, technology, engineering, and mathematics), according to respondents.

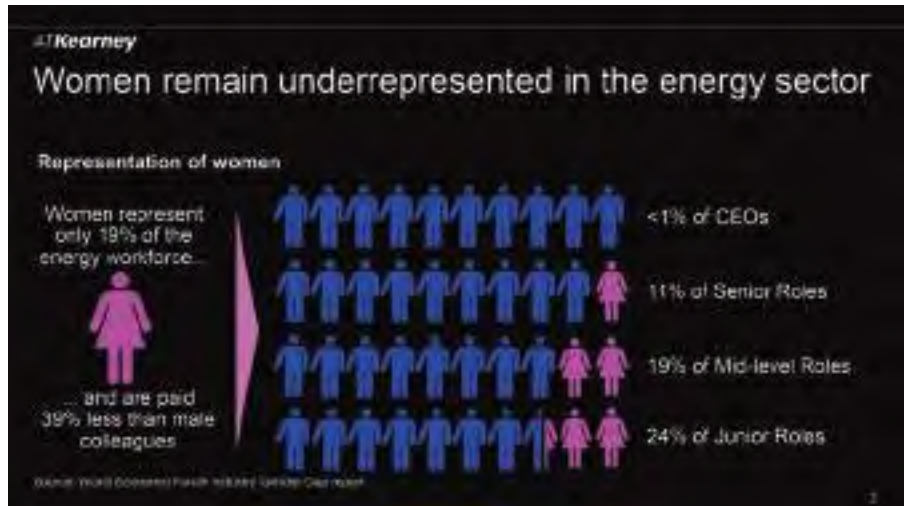
Infrastructural support (e.g. child-care, facilities for women), greater visibility of senior female role models, and better communication of career opportunities for women represent the top three programmes companies can invest in to attract female talent. To retain female talent, companies must provide quality infrastructure for childcare, comprehensive maternity benefits and flexible work opportunities.

Regular review of development needs and design of action plans, combined with fast-track development and formal mentoring programmes, can help companies build and retain a pipeline of female leaders.

According to recent research from A.T. Kearney, female participation in the regional workforce has increased by 33 per cent since 1993. Growth in female participation across industries in the GCC ranges from 15 per cent in Kuwait to 63 per cent in the UAE.

"In the energy sector, the role of gender diversity is as important as for other industries," said Perniceni. "There is an untapped opportunity to be further explored and exploited. I believe that reaching gender diversity and reaping the benefits will require a concerted effort not only by the women themselves, but also through collaboration and identification of solutions in social networks, governments and companies alike."

A.T. Kearney held a voting discussion at the ADIPEC Women in Energy conference, which provided an inspiring forum for debating



Source: World Economic Forum Industry Gender Gap report

the issues surrounding the role of women in the energy sector. A key message of the event was that the success and sustainability of the petroleum industry will depend on the ability to embrace workplace diversity, with new and exciting opportunities opening up as the energy landscape evolves.



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 Progress Is Life

Warrior hydraulic top drives powered by Hägglunds solutions

Hägglunds solutions from Bosch Rexroth have played a major role for the success of the hydraulic top drives from Warrior Rig Technologies Limited, the Canadian producer of drilling equipment.

Warrior vice president of engineering and technical services Jeff Blacklock commented that in recent years there has been a push toward large horizontal wells and well stimulation. "With that, the torque requirements of the top drives are only increasing, and there we see a real advantage with Hägglunds," he said. "The Hägglunds CA motor has definitely helped us to compete."

He explained that the Hägglunds CA motor has the ability to pack a lot of horsepower into a very small footprint. This allows Warrior to get well over 30,000 ft-lbs of torque to the quill at a supply pressure of 5000 psi. This would otherwise require a larger installation with an AC drive and the difference can be of critical importance.

"When retrofitting older rigs, a lot of times the masts simply are not designed for top drives," Blacklock said. "They can be very skinny at the top, which can make a top drive difficult to install. A small drive footprint can actually make the difference between a top drive working or not working."

The Hägglunds concept owes its small footprint to the direct drive concept, which removes vulnerability when the torque is transferred directly to the drill string.

"The Hägglunds design is coupled directly to the quill via the splines inside the motor. This creates a very high level of reliability and maximises uptime and minimises the risk of costly failures," Blacklock explained.

Hägglunds motor also allows Warrior's hydraulic top drives to perform in fully variable speed by enabling its two-speed shifting with a two-speed

The Hägglunds motor is used in around 120 Warrior hydraulic top drives. (Photo: Bosch Rexroth)



manifold. This gives the user options without the logistics of plumbing and working with multiple motors.

In the field, the product can now be found in roughly 120 hydraulic top drives from Warrior. Blacklock and McGrath agreed that there is a real difference in the Hägglunds capabilities, and that customers are pleased with the torque and power characteristics.

Oman Cement Company leads in oil well cement

ESTABLISHED IN 1978, Oman Cement Company (OCC) has played a key role in supporting Oman's drive for self-reliance in core industries, and has expanded capacity from 600,000 TPA clinker to 2.4MTPA today. It introduced oil well cement (OWC), a specialised cement used by crude oil producers to cement oil wells, in 2001.

All the raw materials required for the production are indigenous. Lime stone deposits, additives, quartzophylites and

ferrogenous quartzophylites are located adjacent to the plant site. Gypsum, which is used for retarding the setting of cement is obtained from the mines at Ghaba in Wilayat Adam. Three kilns and four cement grinding mills allow flexibility to produce various types of cement.

OWC produced by OCC conforms to API specifications – 10A Class-G (HSR) and Class-A (0) grades, and has been tested by cementing companies worldwide for its

conformity to API Spec. 10A. It is easy to disperse and can result in considerable cost savings for end-users.

The company's high quality OWC is being used by major oil companies and oilfield service companies such as Petroleum Development Oman (PDO), Schlumberger, Halliburton and Occidental. OCC exports its products to countries in the Middle East, Indian subcontinent and Africa.

Production of OWC is supported by state-of-the-art laboratory automation systems consisting of online gamma-ray analysers, x-ray spectrometers and robotic sampler. These are interfaced with process controllers and a raw mill proportioning system for kiln feed homogeneity. The raw materials are analysed at various stages of processing. Kiln feed composition is precision controlled to achieve uniform and consistent quality, batch after batch.

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Oman Cement Company's manufacturing facility



Driving efficiency in rigless well abandonment

AS AGING FIELDS reach their productive economic limits, well abandonment has become an emerging requirement in the oil and gas industry.

In the high oil price environment of the mid-2000s, which supported the rising lifting costs associated with off-plateau production profiles, there was a drive to enhance production from depleted wells. Following the decline in oil prices from early 2015, operators are now faced with increased lifting costs compounded by aging assets and well integrity issues.

While individual well abandonment is not new, the industry needs to abandon offshore assets in a size and scale not experienced previously. Many of these assets were 'technological firsts' during their construction and present significant challenges in the deconstruction phase of their life cycle. The reasons for deferring abandonment projects are typically cost-driven. Where wells and facilities are ready to be abandoned today, the process involves reversing the original drilling and construction process which is expensive. With limited R&D funding in the current market conditions, the trend has been to 'watch and learn' in the hope that experience will lead to

innovation, which will eventually drive down costs. In the meantime, the cost to maintain old facilities only increases.

A long-term working relationship between Expro and Owen Oil Tools contributed to the accelerated design, development and delivery of the three new PAC™ gun systems. It is a much better option to standard tubing/casing perforators, say the companies, with 0-360° coverage and large diameter exit holes. It has been designed and developed to produce limited damage to secondary string regardless of primary to secondary string orientation.

The multiple tubing/casing string penetration has aided a major North Sea operator to permanently abandon all wells and decommission its facility (first production was in 1996). The five-well campaign was planned for 70 days and delivered via rigless thru-tubing abandonment supported by a self-erecting jack-up barge. However, the challenges included potential salt accumulations in wells restricting wellbore.

With the multi barrier perforation, which is a combination of existing technology and Expro's proven track record of perforating through multiple barriers using standard deep

penetrating or big hole perforating charges, a total of 12 cement plugs were squeezed through the perforating zones to fully comply with abandonment regulations. Three successful tubing cuts were performed, including cutting a triple encapsulated injection line to ensure no conduit was left through cement plugs. Expro received client commendation for:

- No rig required: tubing remained in the well
- No requirement for e-line: one PCE rig up per well which saved time
- Reduced personnel costs: Three-man, multi disciplined, intervention crew
- Safe, cost effective, technology-driven solutions.

According to Kevin Illingworth, global well abandonment manager at Expro (UK), the oil and gas industry is looking for new technologies to drive cost efficiency; however old 'tried and tested' methods and processes still dominate – and will sustain this near-term wave of abandonment activity. However, it won't be long until this innovative approach, developed in the industry's formative years, will be applied to solve the challenges of well abandonment.



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بعض النجاحات الملموسة. فمنذ بضعة أعوام قمنا بتطبيق برنامج تجريبي لمدة عامين لاستقدام ٢٠ مهندسة للعمل الميداني. أمضينا ستة أشهر في إجراء البحوث عن التداير التي ربما تكون مطلوبة لتسهيل هذا الأمر، واستفدنا في ذلك من المعلومات التي أدلت بها النساء المعنيات. وتم التوصل إلى متطلبات ميسورة وقابلة للتنفيذ؛ مثل الإقامة الآمنة. وشهد المشروع نجاحا كبيرا حتى أن النساء المشاركات لم يرغبن في الرجوع إلى العمل في المكاتب عندما تبحث عن الحلول الفعلية لإحراز النجاح في مكان العمل، فسوف تتوصل إلى حلول بسيطة وميسورة وقابلة للتنفيذ.

• ما رأيك في سر نجاحك؟

• • أعتقد أن من أهم صفاتي المثابرة. لا أياس أبدا إن تعثرت مرة وإنما أنهض مجددا. وهذه ميزة كبيرة في بيئة يهيمن عليها الذكور! يجب أن تمتلك القدرة على الاعتراف بالإخفاق. لقد تعرضت للعديد من المواقف المحبطة لكن لحظات النجاح هي ما تبقى في الذاكرة. لقد وصلت لذروة حياتي المهنية، وأتطلع بشدة الآن لإحداث الفارق مع موظفاتنا. وأرغب في تكريس ما تبقى من مدة عملي في الارتقاء بهؤلاء النساء، وإقناعهن بأهمية المثابرة وتحديد معالم الطريق.

• ما هي نصيحتك للشباب المتوجهين للعمل في هذا

المجال وفي هذه الأوقات المليئة بالتحديات؟

• • عدم اليأس، وبخاصة في بيئة اليوم المليئة بالتحديات. إن الأمر الثابت الوحيد هو التغيير، فسيحدث التغيير دوما، ويجب بذل كل جهد لتجاوز العاصفة. وبعد العاصفة، تتضح الصورة جلية ويهدأ الغبار. لا تحد عن طريقك وسوف تبرز الصناعة بشكل أقوى بأي شكل من الأشكال. لقد مررت بالكثير من هذه التجارب. العالم بحاجة دائمة إلى الطاقة، وتحتاج الطاقة دوما إلى الموهبة أيا كان مصدرها، سواء كانت نفطاً أو غازاً أو طاقة متجددة. احب ما تعمل وابدأ عمك في هذا المجال بعقلية اقتناص الفرص، فهنا تكون الموهبة مطلوبة ويكون هناك انفتاح نحو الإبداع والتكنولوجيا والأفكار الجديدة. كن مميزاً، وتحل بالصراحة، واعمل على تطوير ذاتك، واظهر مواهبك. الفرصة سانحة أمامك!

على فرص متساوية للمنافسة، وتطوير القدرات بأفضل صورة ممكنة، بحيث يشعرن بالراحة عند الحضور إلى العمل في الصباح. وما يفوق ذلك أهمية هو أن مشاركة النساء في مكان العمل بدأت تضيف القيمة بشكل ملحوظ.

نحن نبلي بلاء حسنا في جذب النساء. وبوصفي رئيسة شبكة النساء «حواء» في شركة تنمية نفط عمان، فإنني أركز على إجراء تغييرات بسيطة للتعامل مع شواغل الموظفات في مكان العمل، وتطبيق التعديلات التي من شأنها تطوير مهاراتهم. إنها عملية ثنائية، حيث تحتاج النساء إلى التحدث عما يساورهن من شواغل، ولن يتسنى لنا تغيير السياسة من دون الاستماع إليهن، ولكنهن يُحجمن عن فعل ذلك! ومن ثم فأنا أسعى لتطوير المهارات الشخصية لتشجيع النساء على الحديث، وإنشاء ورش عمل تُعبر فيها النساء عن أنفسهن بأمان وحرية.

كما أنني أعكف أيضا على تغيير السياسة، ونقل مشكلات النساء إلى الرجال. فمن شأن أنماط العمل المرنة، والقدرة على العمل من المنزل، على سبيل المثال، إحداث فارق كبير، ولكنها ليست بعد ممارسة عامة، وذلك بسبب نقص البنية الأساسية وعدم الثقة. ولكننا في طريقنا إلى الوصول إلى ذلك مهما طال الزمن! إن أمنيته هي تأسيس شركة على دراية كاملة بقيمة النساء للنجاح في مكان العمل. لقد حققنا

كما أننا كذلك بحاجة إلى فريق على جانب من الكفاءة الفنية. ففي أوقات الأزمات، حين يغادر الموظفون ذوو الخبرات، يتضرر الإبداع كثيرا. وتسعى شركة تنمية نفط عمان لإحداث التوازن بين جذب أفضل المهارات والاحتفاظ بموظفيها المتمكنين والخبراء. وتعتبر ثقافة عدم اللوم عاملاً آخر مهما، إذ لا يخشى الموظفون المخاطرة ويتعلمون من أخطائهم.

• ما هي الإجراءات التي يمكن اتخاذها لتعزيز مشاركة النساء في صناعة النفط والغاز، ولمساعدهن على تولي المناصب القيادية؟

• • تعتبر شركة تنمية نفط عمان نجماً ساطعاً في هذا الصدد، فهي ليست رائدة فقط في عمان وإنما على مستوى المنطقة بأسرها. إذ أن ما يزيد على ربع أعضاء لجنة الأعضاء المنتدبين نساء (أربع من بين ١٥ عضواً)، كما تشغل النساء ما يربو على ١٢ في المائة من قوة العمل في الشركة التي يبلغ إجمالي عدد موظفيها ٩٦٠ موظفاً. ومما يبيث روح الأمل والتشجيع، هناك ٤٧٠ امرأة عمانية تشغل الوظائف الفنية لدينا، ومن بينها مهندسة النفط، وهندسة واكتشاف الآبار. وقد شهد هذا العدد زيادة تفوق الضعف خلال السنوات الماضية (بعدما كان ٢٢٨ في ٢٠١١).

وأعتقد أن علينا التوقف عن الحديث عن «تمكين النساء» والتحول إلى التعامل مع الشواغل العملية، وتعزيز بيئة مواتية تحصل فيها النساء



عاملات في شركة تنمية نفط عمان يحتفلن باليوم العالمي للمرأة



انتصار كندي
مديرة التنقيب بشركة تنمية نفط عمان.

انتصار كندي: شخصية نسائية رائدة في قطاع النفط والغاز

انتصار كندي، مديرة التنقيب بشركة تنمية نفط عمان ورئيسة شبكة «حواء» الخاصة بالنساء في الشركة، تشاركنا رؤيتها الخاصة في هذا الحوار.

التكلفة الباهظة. فهو يتيح لنا الإلمام العميق بالمناطق في مرحلة التقييم، قبل إنفاق الأموال على تطوير الموارد. وقد لعبت تكنولوجيات التصوير والمسح الزلزالي دوراً محورياً في تطوير أداء الاستكشاف خلال السنوات الأخيرة. وقد حصلنا في العام الماضي على ما يزيد على ٩ آلاف كيلومتر مربع من الصور الزلزالية ثلاثية الأبعاد من الجيل التالي.

• ما هي مقومات الإبداع الرئيسية؟

• يأتي المناخ المؤسسي على رأس القائمة، فهو يجب أن يتميز بالوضوح والشمول مع وضع إستراتيجية محددة وتحديد أهداف تطوير الشركة. كما يجب أن تفتح الشركة على الأفكار الجديدة وتتبنى بيئة إبداعية تشجع على التجريب والتفكير خارج الصندوق. ومن المهم أيضاً دعم مناخ تشاركي مع المقاولين، فذلك مطلوب حتى يزدهر التفكير الإبداعي وغير المؤلف. فغالبا ما يبتكر المقاولون طرقاً أفضل للقيام بالأعمال.

• ما رأيك في دور الإبداع في مواجهة التحديات الحالية التي تواجه التنقيب؟

• إنه مهم للغاية، وخاصة في المناخ الحالي. وسوف يحظى بالمزيد من الأهمية لتعزيز الصناعة على المدى البعيد في أنحاء العالم، وكما يقال «الحاجة أم الاختراع». لدينا في شركة تنمية نفط عمان ما يقرب من ٧٠-٥٠ تكنولوجيا جديدة يجري العمل على استكشافها، مثل الاستخلاص المعزز للنفط باستخدام الطاقة الشمسية، والبوليمرات والمواد الخافضة للتوتر السطحي. والهدف الأساسي هو إنتاج المزيد من مشتقات الهيدروكربون بطريقة أكثر أمناً وكفاءة ومسؤولية. أما بالنسبة للتنقيب، فينصب التركيز على التكنولوجيات الإبداعية التي تعمل على خفض التكاليف. ونحن نعتمد على الإبداع لنستهدف خفض التكاليف والمخاطر الفنية للوحدات، والحد من المخاطر الشديدة، وهو أمر مهم للغاية، لا سيما بالنسبة للمشروعات ذات



مفكرة رجال الأعمال

يناير/كانون الثاني ٢٠١٧

١٨.١٦ المعرض والمؤتمر الهندي

للعلوم الجيولوجية - GEO India
نيو دلهي

١٩.١٦ قمة طاقة المستقبل
أبوظبي

٢٢ - ٢٤ معرض معدات الأمن والسلامة والوقاية من الحريق - إنترسك دبي

٢٦.٢٧ قمة شمال أفريقيا للنفط والغاز
ميلان

٢٠. ٢/١ المؤتمر والمعرض الإيراني للصناعات البترولية
طهران

فبراير/شباط

٢١ - ٢٢ منتدى الشرق الأوسط لتكنولوجيا التكرير والبتروكيماويات - دبي
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مركز التدريب الجديد سيوفر دورات متعددة تتعلق بالصحة والسلامة وعمليات النفط والغاز

أبرمت ريستراتا، الشركة الرائدة عالمياً في تقديم الخدمات الاستشارية والتدريب، عقد شراكة مع شركة أجيليتي للخدمات اللوجستية من أجل توفير التدريب المتخصص لموظفي قطاع النفط والغاز بمحطة الرميطة للطاقة الكهربائية جنوب العراق. وسيوفر مركز التدريب الجديد بالمحطة مجموعة من الدورات التدريبية المتعلقة بالصحة والسلامة، إلى جانب العمليات الصناعية في قطاع النفط والغاز. وتستوفي جميع الدورات التدريبية المعايير الدولية، وهي معتمدة وتشمل خدمات النقل والإمداد والتموين والأمن.

ما يتعلق بمجال الصحة والسلامة والحماية والبيئة. وفي العراق، تشارك الشركة في العديد من المشاريع التي تتضمن تدريب رجال الإطفاء بشركة غازبروم في حقل بدر، وتدريب الصحة والسلامة والبيئة لشركة لوك أويل في حقل غرب القرنة ٢، والتدريب على اللغة الإنجليزية وتطوير المهارات الشخصية لشركة بتروشاينا في حقل الحلفاية، هذا إلى جانب التدريب على السلامة بالنيابة عن شركة بريتش بترولوم (هيئة تشغيل الرميطة) لقوة حماية الحقول النفطية في الرميطة.

تدريبهم وفقاً لأعلى المعايير حتى في البيئة الحالية التي تشهد انخفاض أسعار النفط. ونحن نهدف إلى تعزيز قاعدة عملائنا عبر الإدارة الفعالة والمجدية من حيث التكلفة للمخاطر التي تهدد أمنهم وسلامتهم، وجميع برامجنا التدريبية توفر ذلك».

وتعمل شركة ريستراتا، التي اندمجت حديثاً مع شركتها الشقيقة ستيرلينغ جروب، في الشرق الأوسط منذ أكثر من ٢٥ عاماً، وهي تركز على توفير خدمات إدارة المخاطر في كل

ومحطة الرميطة للطاقة الكهربائية هي محطة صناعية متكاملة الخدمات على مساحة مليون متر مربع، وقد تولت شركة أجيليتي العقارية تطويرها لتقديم الخدمات والدعم من أجل تطوير حقول النفط الرئيسية، وهي تشمل حقل الرميطة الشمالي/الجنوبي وغرب القرنة والزيبر، وهي بمثابة محطة عبور آمنة لوسط العراق. وقال ويل فوليت، نائب رئيس وحدة تطوير القوى العاملة في شركة ريستراتا: «يتعين على شركات النفط العالمية تحقيق الأهداف المتعلقة بعدد العمال المحليين الذين تعينهم، ومن الواجب

مصر ترسي عطاءات التنقيب عن النفط والغاز

أرست مصر ستة عطاءات للتنقيب عن النفط والغاز بقيمة استثمارات إجمالية تبلغ ٢٠٠ مليون دولار، حسبما أعلنت وزارة البترول. ففي مايو/أيار من هذا العام (٢٠١٦) أعلنت الهيئة العامة للبترول عن طرح مزايده عالمية للعمل في ١١ موقعا للنفط والغاز الطبيعي في الصحراء الغربية وخليج السويس، حيث تسعى مصر إلى زيادة إنتاجها من النفط والغاز لتلبية الاحتياجات المحلية المتزايدة من الطاقة.

ووفقا لوكالة رويترز، جاءت شل وبريتش بترولوم وأباتشي وأبيكس بين الشركات التي فازت بالمزايدات، حسبما أعلنت الوزارة في بيان لها. وبلغ الحد الأدنى لاستثمارات شركة بريتش بترولوم ٤٦ مليون دولار أمريكي، وأباتشي ٦٠ مليون دولار أمريكي، بينما عرضت شركة شل استثمارات قدرها ٣٥،٥ مليون دولار أمريكي كحد أدنى.

وتبذل الحكومة جهودا مكثفة لجذب المستثمرين الأجانب للعودة مجددا إلى قطاع الطاقة في مساعيها لتعزيز أوضاعها المالية العامة المتعسرة. ومصر مديونة حاليا بما يقرب من ٢ مليارات دولار أمريكي لشركات النفط العالمية عن توريدات النفط والغاز.



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المشروع سيعزز إنتاج المملكة من الخام وأيضا القدرة على المعالجة

السعودية ت دشّن خمسة مشروعات عملاقة

دشن خادم الحرمين الشريفين، الملك سلمان بن عبد العزيز، خمسة مشروعات في مجال النفط والغاز، وذلك في إطار الخطط التنموية التي وضعتها المملكة، والمحددة في رؤية ٢٠٣٠. أما المشروعات الخمسة العملاقة فهي معمل الغاز في واسط، وتطوير حقل منيفة للنفط الخام، ومشروع استخراج سوائل الغاز الطبيعي من حقل الشيبة، ومشروع زيادة إنتاج الزيت الخام في حقل الشيبة، ومشروع تطوير الإنتاج في حقل خريص للزيت الخام. وقد افتتح الملك سلمان هذه المشروعات في إدارة تخطيط وتنظيم وتوريد النفط في أرامكو السعودية خلال زيارته الرسمية لمقر الشركة.

وتهدف المشروعات الخمسة إلى تحسين إنتاج المملكة من النفط الخام، وتعزيز قدرات المعالجة، وتوفير كميات إضافية من الغاز لتوليد الكهرباء والتصنيع. وتعد المشروعات أيضا خطوة جوهرية نحو تلبية الاحتياجات المحلية المتزايدة من الطاقة والمواد الكيميائية، وأيضا تعزيز إنتاج الغاز لزيادة استخدام الوقود النظيف وعالي الكفاءة.

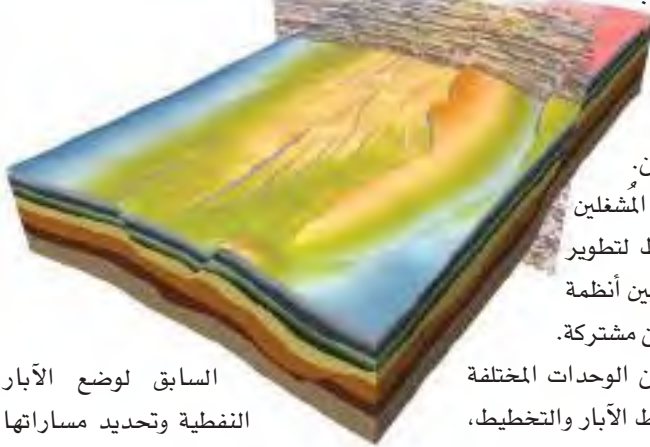
من جانبه قال خالد الفالح، وزير الطاقة والصناعة والثروة المعدنية ورئيس شركة أرامكو السعودية: «مع هذه المبادرات، نواصل الوفاء بوعود المملكة لتوفير غد أفضل برفع قدرات إنتاج الطاقة، وتوفير فرص خلق القيمة

الجديدة، ومنصة للوصول إلى آفاق معرفية جديدة». وأردف بقوله: «تركز رؤية ٢٠٣٠ على تعزيز مكانة المملكة الرائدة ليس فقط في حقول الطاقة والصناعة والاقتصاد، بل أيضا في العلوم والتكنولوجيا والثقافة. سوف تكون هناك إنجازات هائلة في المعرفة والتطوير، ويبقى الهدف الرئيسي متمثلاً في تعزيز الإبداع في المملكة وبناء الجسور مع الثقافات الأخرى».

إمرسون تزود شركة نفط الكويت بالبرمجيات

فازت شركة إمرسون أوتوميشن بعقد جديد لتوريد برنامج Roxar RMS™ لبناء نماذج مكانن لشركة نفط الكويت، بغرض تسهيل إنشاء المزيد من النماذج الأكثر دقة وتفصيلاً للمكانن. وبرنامج Roxar RMS يساعد المشغلين على إسرار دورة التخطيط لتطوير الحقول عبر إتاحة التعاون بين أنظمة متعددة لإنشاء نماذج مكانن مشتركة.

البرنامج سيسهل بناء نماذج مكانن أكثر دقة



وهو يتضمن مجموعة من الوحدات المختلفة التي تشمل مجالات مثل ربط الآبار والتخطيط، وإنشاء النماذج الهيكلية، وإنشاء النماذج البتروفيزيائية، وتحديدات النماذج المحلية، وإنشاء نماذج للسحنة، وإنشاء نماذج للكسور، وإدارة درجة عدم التيقن. وكانت شركة نفط الكويت قد استخدمت برنامج Roxar RMS في

الهيكلية والتقييم الجيو إحصائي المتقدم، فيما يتعلق بإنشاء الخلايا الشبكية للبيانات وغيرها من التحليلات الأخرى، تقديم نتائج عالية الدقة. ونحن الآن بصدد دمج البيانات الزلزالية بالنموذج الثابت».

وقال علي رمادي، مدير المبيعات الإقليمي لمنطقة الشرق الأوسط وأفريقيا في شركة إمرسون: «التعاون القائم بيننا وبين شركة نفط الكويت يعزز الثقة عندما يتعلق الأمر باتخاذ قرارات حاسمة بشأن اختيار أماكن الحفر، وإستراتيجيات الإنتاج الواجب اعتمادها، وكيفية مضاعفة استخراج النفط».

وأضاف: «سنواصل تزويد شركة نفط الكويت بتقنيات متقدمة لإدارة المسح الزلزالي والإنتاج لتحسين التكامل وأنسيابية سير العمل بين المخزونات في باطن الأرض وعلى السطح، وهو ما يعتبر عنصراً أساسياً في مجال حقول النفط الرقمية في المستقبل».

السابق لوضع الآبار النفطية وتحديد مساراتها في الأجزاء الأكثر إنتاجاً من المكانن، إلى جانب تقليل مخاطر التحركات الجيولوجية بالنسبة للآبار التي تتحرف عن مسارها. وعلق عبد الله العوضي، كبير الجيولوجيين في شركة نفط الكويت بقوله: «كان من شأن النموذج

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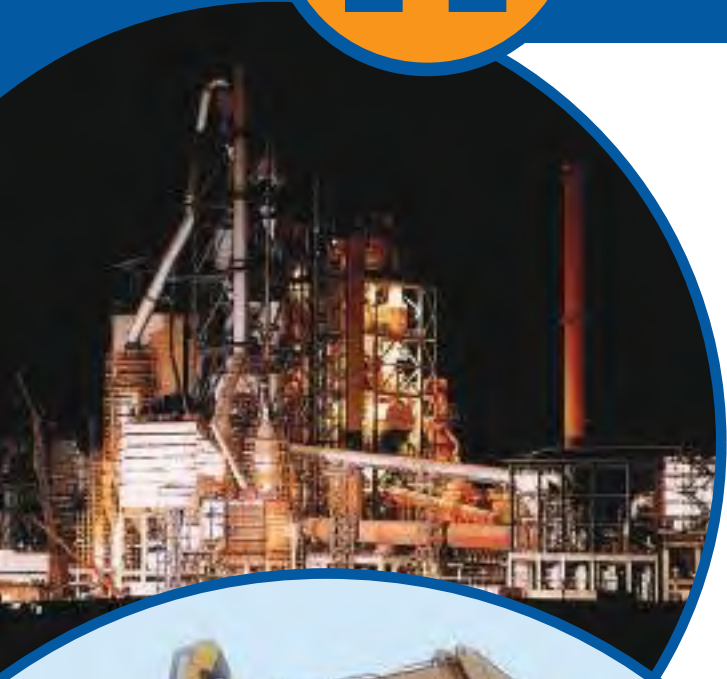
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