

2009 4th Quarter

# J. Ray NEWS

AN OFFICIAL PUBLICATION OF J. RAY McDERMOTT, S.A.

Special Focus

## Reaching higher

Competitive spirit, commitment and constant strides for improvement drive athletic feats of excellence

## Volga

Heart and soul of Russia

Expansive river of history, culture and commerce, Volga is one of Russia's most enduring and endearing symbols





# Scheduling Certainty

from concept to commissioning



# Letter from Bob Deason



*President and Chief Executive Officer  
of J. Ray McDermott*

Despite ongoing challenges from the economic environment, J. Ray McDermott's business fundamentals remain the same. We continue to focus on providing innovative engineering, strong procurement services, modern fabrication facilities and a flexible, capable fleet to serve our customers across the world with conventional projects; floating facilities; and subsea infrastructure, umbilicals, risers and flowlines.

We know we are on the right track. For the second quarter of 2009 our consolidated earnings reported the highest income level of the last four quarters and our backlog remains at near record levels. Project activity is high, as reflected in the "Pipeline" section of this issue of *J. Ray News* and our involvement in the dynamic North Caspian Sea, highlighted in the "Area Focus."

We are proud of these strong results; performing well during these challenging times is the sign of a great company. We also know we can't rest on our laurels. As American comedian, humorist, social commentator and actor Will Rogers said, "Even if you're on the right track, you'll get run over if you just sit there."

We are facing the challenges head-on, making the tough decisions we have to make. We are rationalizing the organization to reflect the need to do more with less, focusing on cost-cutting initiatives across the company, and looking at ways to improve our bottom line. At the same time, we are looking at opportunities to increase our competitiveness through smart investments.

While we can't save our way to success, we must continually seek higher levels of performance. Guided by our business focus and strategy, we look for ways to improve and raise the quality of products and services we provide our customers. Highlighted in the "Special Focus" of this issue, such continual improvement is ingrained in J. Ray through our core values, Charter and management system. It is also manifested through individuals, project teams and departments throughout the company with the same dedication, discipline and drive.

The economy may be down, but we're not out. By embracing change, challenging the status quo, working hard and keeping our focus, we position ourselves to continue to thrive and be prepared for greater growth when the economy does turn around.

*Bob Deason*



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an official publication of J. Ray McDermott

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On the cover

Ammonite fossils, found on the banks and delta of Russia's Volga River, housed mollusk-like creatures that lived in warm, shallow waters during the Jurassic and Cretaceous periods. The name dates back to 79AD, derived from the Egyptian god Ammon, who wore rams' horns. As index fossils, they link rock layer in which they are found to specific geological periods. Symbolically, ammonites are considered links to happiness and long life; energy and balance.



Photo Credit: Mircea Bezerghianu

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# J. RAY McDERMOTT makes headlines across the globe



## ▲ PLUTO PROGRESSES

Batam Island crews recently achieved several milestones in the installation of Woodside Petroleum's 13,228-ton, 250-module Pluto riser platform.

One major task was loading out the 8,818-ton drilling work decks and caissons. Their size posed significant challenges in fabrication and equipment preparation; moving them across the Batam Island, Indonesia facility; and lifting them onto the transportation barge using the Lampson crane.

The 4,409-ton Pluto jacket was loaded out on to I-650 and moved to the Batam South Basin to await arrival of DB30 and transport to Australia for installation.

The Pluto gas field is located in Carnarvon Basin approximately 118 miles northwest of Karratha, Western Australia. First gas is expected by the end of 2010, with delivery of first LNG cargo in 2011.

## ▲ MALAYSIAN AWARD

J. Ray McDermott's Malaysian affiliate Barmada McDermott Sdn. Bhd. was recently awarded a transportation and installation contract by ExxonMobil Exploration and Production Malaysia Inc. for the replacement of a 12-inch full well stream pipeline between Guntong-B

and Guntong-A platforms, off the east coast of Peninsular Malaysia.

The scope of work also includes transportation and installation of a new flare boom to replace an existing flare boom at the Guntong-A platform.

## ▲ ALTAMIRA FIRSTS

J. Ray McDermott has completed the Maloob-C drilling platform for PEMEX Exploración y Producción and will undertake its installation in the Ku-Maloob-Zaap field in the Bay of Campeche offshore Mexico in 264 feet of water. The Maloob-C Platform is designed to sustain 18 wells.

The first project to be built at J. Ray's facility in Altamira, Mexico, work on the drilling platform began in February 2008. Fabrication of the two-level, 2,535-ton deck and 3,527-ton jacket; factory testing, onshore pre-commissioning and operational testing; load out and sea fastening were all performed by J. Ray at Altamira. Additionally, more than 3,300 tons of piles were fabricated for the project at J. Ray's Morgan City, Louisiana facility using its rolling mill.

J. Ray engineers supervised the detailed engineering, and the procurement group purchased materials, equipment and

instrumentation not already provided by PEMEX. At peak construction, J. Ray had more than 500 craftsmen and professionals involved with the project.

## ▲ MODULE MILESTONE

Ten months following first steel cut on August 4, 2008, J. Ray's Batam Island, Indonesia facility successfully loaded out the first module, of nine, for the Maersk Peregrino FPSO project. The local equipment room, probably the biggest electrical room in the offshore industry, will be installed onto the FPSO hull in Singapore.

The project has reported more than 1.3 million man-hours without a lost time injury.

## ▲ TRINIDAD TRILOGY

The Angostura project is progressing well at Morgan City and load out is expected to occur during the second quarter of 2010. Project scope includes fabricating a 4,000-ton integrated topsides, 800-ton four-legged jacket and 1,000 tons of piles for the platform located in block 2C located 22 miles offshore the northeast coast of Trinidad.

This is the third project in the recent past that Morgan City has performed fabrication of facilities destined for Trinidad.



**Top photo:** J. Ray, FloaTEC and Keppel FELS represented the companies' capabilities at Subsea Rio. **Bottom photo:** Derek Parsons (far left) presents the car donated by J. Ray's Caspian region to CCP representatives.

### ▲ KIDS' PLAY

In recognition and celebration of important achievements on Woodside's North Rankin B substructure fabrication project, a children's playground was built beside J. Ray's Batam Island medical clinic by a combined Woodside and J. Ray team. The effort is an excellent example of teamwork in action and demonstrates commitment to Woodside's safety goal of "No one gets hurt, no incidents."

### SUPPLY PARTNERS

J. Ray's Caspian procurement department hosted its first Supply Chain Day for companies based in Azerbaijan. Within just a few hours, J. Ray procurement staff met representatives from more than 30 new companies that were willing to become partners.

"Local business enterprises make up more than half of our vendors and subcontractors in Azerbaijan, and nearly 70 percent of all purchases for our projects in the country are from local suppliers," said Dwayne Broussard, J. Ray's Caspian Procurement Manager. "We intend to broaden our local supply chain further, contributing to the development of Azerbaijan's national economy."

### SAFETY EXCELLENCE

J. Ray's derrick barge DB27 achieved a record of 6 million man hours without a loss time incident during the second quarter of 2009.

"We have taken the J. Ray policies, procedures and philosophies and incorporated them into the culture here on the barge, which we like to call Team 27," said Billy Bullock, Superintendent, about reasons for the success. "We all ensure that no short cuts are taken and that everyone takes the time to do the job at hand safely, with quality and as much productivity as possible."

### INDUSTRY RECOGNITION

J. Ray received a 2008 International Pipeline and Offshore Contractors Association (IPOCA) award sponsored by Chevron in recognition of commitment to health and safety. Specifically, J. Ray was honored for exemplary success of its Accident/Incident Investigation process in improving safety regulation and performance.

### DRIVEN WITH CARE

In providing high-quality medical services to orphans and the needy in Azerbaijan, local humanitarian organization Caspian Compassion Project (CCP) is highly dependant

on transportation. Loss of one of its two vehicles after a serious car accident became a significant setback for the charity – until J. Ray's Caspian operating unit donated a company vehicle to CCP.

"Paying special attention to social programs, we aim to establish sustainable relationships with local communities and charities," said Derek Parsons, General Manager – Caspian Operations.

Totaling nearly US\$400,000 to date, J. Ray's social investments in the region include both financial contributions and in-kind donations through the use of in-house resources and capabilities.

### SUBSEA RIO

J. Ray's Subsea department, joint venture company FloaTEC LLC and joint venture partner Keppel FELS participated in Subsea Rio. Attracting more than 400 attendees, the conference addresses the latest in technical advances, challenges and opportunities for the deep and ultra deepwater offshore sector in Brazil and other international regions.

In 2011, it will transition into the biannual "OTC Brazil," endorsed by the OTC Board of Directors and in partnership with Subsea Rio organizer Quest Offshore Resources.



◀ PLATFORM TRIO

The Qatargas 3 & 4 project reached a significant milestone recently when J. Ray's DB101 and Jebel Ali-based crews safely installed the last of three topsides and pipeline risers onto the QW8 jacket. The three equally sized (almost 2,800 tons each) wellhead platforms – QW7, QW8 and QW9 – will deliver gas to Qatargas Train 6 and Train 7 at Ras Laffan through two new 38-inch diameter pipelines installed by J. Ray under a separate contract late last year.

▼ INNOVATION AWARDED

John Murray, Director of Technology Development for FloaTEC, LLC, recently received the 2009 *World Oil* magazine Innovative Thinkers Award.

"This is great recognition of Dr. Murray's distinguished career and his contribution to our industry in developing solutions for ultra-deepwater and harsh environments," said Eric Namtvedt, President of FloaTEC, LLC, the joint venture between Keppel FELS and J. Ray McDermott.



*Pictured from left: Namtvedt; Murray; YY Chow, President of Keppel Offshore & Marine and FloaTEC, LLC Board Member; and Edmund Muehlner, Lead Structural Engineer, FloaTEC, LLC*

FINANCIAL OVERVIEW

McDermott International, Inc. ("McDermott"), J. Ray's parent company, delivered solid results in the 2009 second quarter. Net income was US\$92.6 million, or \$0.40 per diluted share, for the 2009 second quarter, compared to its record quarter of US\$177.5 million, or \$0.77 per diluted share, in the corresponding period of 2008. This is the highest income level of the last four quarters.

McDermott's revenues in the second quarter of 2009 were US\$1.6 billion, compared to US\$1.8 billion in the corresponding period in 2008. The decrease in consolidated revenues was primarily due to a lower level of activity in the Power Generation Systems segment, partially offset by increased revenues in the Government Operations segment.

Operating income in 2009 second quarter was \$147.7 million, compared to \$231.1 million in the 2008 second quarter. Notwithstanding a 35.2 percent year-over-year increase in Government Operations' segment income, McDermott's 2009 second quarter operating income declined compared to a year ago, predominantly from a non-cash increase of \$21.9 million in consolidated pension plan expense and reduced levels of segment income from both Power Generation Systems and Offshore Oil & Gas Construction.

"While the markets we serve lack conviction due to worldwide economic conditions, [McDermott's] bidding activity remains good, particularly in oil and gas, our liquidity improved sequentially to over \$1 billion, and McDermott's backlog remains strong," said John A. Fees, Chief Executive Officer of McDermott.

At June 30, 2009, McDermott's consolidated backlog was \$9.5 billion, compared to \$9.8 billion and \$10 billion at June 30, 2008 and March 31, 2009, respectively.

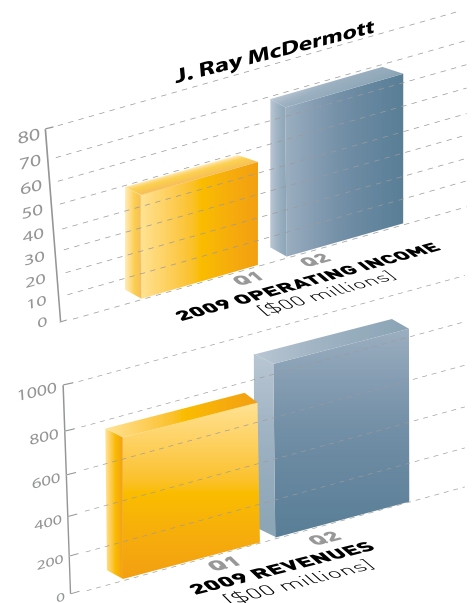
Revenues in the Offshore Oil & Gas Construction segment were \$832.7 million in the 2009 second quarter, compared to \$872.3 million for the same period a year ago. Increased revenues in the Middle East region were more than offset by reduced levels in other regions. Approximately 40 percent of the total 2009 second quarter revenues was derived from Middle East projects in Qatar.

Segment income for the 2009 second quarter was \$67.8 million, compared to \$98 million in the 2008 second quarter. Major areas contributing to second quarter 2009 segment income include the Middle East, Asia Pacific and Americas regions.

At June 30, 2009, segment backlog was \$4.7 billion, compared to backlog of \$5.3 billion

and \$5.0 billion at June 30, 2008 and March 31, 2009, respectively.

"McDermott's second-quarter backlog of \$9.5 billion remains at near record levels. We have a solid balance sheet, and continue to make progress on our work. The second quarter keeps us on pace for a good year, but our ongoing mission will be to remain focused on our project execution," Fees added.





A large offshore oil rig is silhouetted against a dramatic sunset sky. A crane arm extends from the rig, holding a large cylindrical object. The sun is low on the horizon, creating a warm, golden glow over the ocean. The rig's complex structure of steel beams and platforms is visible against the bright sky.

# Securing Productivity

from seafloor to shore





# Volga

Heart and soul of Russia



*Expansive river of history, culture and commerce, Volga is one of Russia's most enduring and endearing symbols.*



**S**uperlatives and terms of endearment flow freely when it comes to Russia's Volga River – "largest river in Europe;" "magnificent," "majestic," "unique natural resource," "matchless wild beauty" and "most beautiful of all earthly gifts." While all suggest its famed and treasured status, none is more profound or poignant as "Mother Volga."

Fundamentally the river of life, "The Volga is like the sky and air. We breathe the Volga, we are enrapt with her," wrote Konstantin Fedin, Russian author.

Since Russia was originally founded – or born – on the river, its life-giving and -enriching properties have become inexorably intertwined with the lives – and hearts – of Russia's people. The Volga provides transportation, work, food, energy and beauty; and deep feeling for it is immortalized in songs, poems and

other literature. Visitors are captivated, too. "Every country has its national river, and Russia has the Volga ... Queen of rivers, and I was one of the many who went to bow to her Majesty River Volga," wrote Alexandre Dumas, French author, in the 19th century.

### Historical lifeline

Widely considered a cradle of Proto-Indo-European civilization, the downstream of the Volga was settled by Huns, Maris and other Turkic and Finnic peoples in the first century. In the second century the river was mentioned as "Rha" by Greek philosopher Ptolemy, although his reference has been proven to be of its lower region.

Little is known about the river until the early Middle Ages when it served as an important trade route connecting Asia with Europe. In the 9th century, Slavic and Finnic tribes settled along its upper course, Bulgars along the middle and Khazars, a Turkic tribe, in the lower.

There are as many interpretations of the name "Volga" as there were early inhabitants. Mari people used "Volgydo," which means "bright." Other theories see it as a Finnic word

"valka," translated as "water," or a proto-Baltic name meaning "long river." Russians explain it from the Slavic word for "wetness," "humidity."

In the 12th century, the Russians advanced down the Volga, founding Novgorod (now Nizhny Novgorod) in the middle region. These efforts were stalled in the 13th century by the Mongols' invasion of the entire Volga River. Known as the Golden Horde, this stronghold made its capital in Saray Berke, in lower Volga, near present day Volgograd.

Two centuries later, Russia's Ivan the Terrible conquered the Golden Horde in 1552, claiming Middle and Lower Volga for Muscovy (modern-day Moscow), the capital of the new Russian state.

During the next two centuries, the Russians secured free passage to the Black Sea and became masters of the Sea of Azov and the Crimea via the Volga. As a rich source of income for Muscovy, river trade also supported gainful bandit and smuggling ventures. Hostile steppe tribes continued to harass Russian traders and settlers, and the region remained an untamed frontier for many years.

In response, the Russian tsar ordered construction of fortified outposts at strategic



**Majestic course** | Bisecting Russia in a 2,300-mile long arc, Volga is the longest river in Europe. With 300 tributaries its area totals 560,000 square miles – more than 40 percent of Europe's land mass and its largest watershed. The main stream ranges from 1,560 feet to almost 2 miles in width and more than 80 feet in depth.

A small stream at its start in the Valdai Hills (742-foot elevation), it soon grows into a "real" river, doubles in size near Nizhny Novgorod and becomes a "mighty river" below Samara. Turning at Volgograd, it flows through Astrakhan's vast delta before emptying into the Caspian Sea, 92 feet below sea level, Europe's lowest elevation.



## Mighty stream so deep and wide Volga, Volga our pride.

- Volga Boatmen's Song, Igor Stravinsky, 1917

points, which attracted semi-autonomous Cossack communities that conducted large-scale peasant uprisings from the late 1600s to late 1700s. One, in 1773, was forever romanticized by Alexander Pushkin's novel *The Captain's Daughter*.

Concerned about the scale and frequency of the fighting, Catherine the Great issued an invitation in 1763 to people around the world to move to the area. Germans in particular responded, and by the end of the 19th century, more than 1.5 million Germans lived along the Volga, most along the lower regions.

From the 1930s to 1960s, Soviet Russia harnessed the Volga for its ambitious development plans, constructing eight complexes of dams, reservoirs and hydroelectric stations. Factories, plants, collective farms and secret military complexes sprang up along the Volga's shores. Provincial trading towns grew into urban industrial centers and were closed to outsiders.

### Vital artery

Today the Volga continues as the lifeblood of Russia and its people, and increasingly to outsiders as well.

Navigable for nearly its entire 2,300-mile length – its infrastructure connecting Moscow to the White Sea, Baltic Sea, Caspian Sea, Sea of Azov and Black Sea and equipped with double locks to accommodate large vessels – and ice-free for more than half of the year, the Volga is “Russia’s Main Street” and one of Europe’s busiest commercial waterways.

More than 40 percent of Russia’s population and 11 of its 20 largest cities, including its capital Moscow, are situated in the Volga’s basin.

More than 900 ports and 550 industrial docks lining its banks have attracted half of Russia’s industry and more than two-thirds of the overland cargo freight to the Volga.

The fertile river valley provides large quantities of wheat, and also has many mineral riches. A substantial petroleum industry centers on the Volga valley. Other minerals include natural gas, salt and potash.

And it’s not just an economical treasure. Lush, tranquil environs – from dense, marshy forests; forest and grassland; grasslands; semi-desert lowlands; and thousands of miles of largely uninterrupted sandy beach along the shores – attract boaters, swimmers, hikers, birdwatchers, fishermen and nature lovers.


Each of its three segments holds its own charm: upper Volga, from its source to below Nizhny Novgorod; middle Volga, extending from there to below Saratov; and lower Volga, its final stretch. Richest in natural resources and for its direct link with the Caspian Sea, this lower region can be viewed as the heart of Mother Volga. Its largest and most important cities are Volgograd and Astrakhan.

### Hero City

Situated at the Volga’s most strategic point, its big bend at the lower segment, is the city of Volgograd. Reputed to be the longest and thinnest city in the world, it stretches more than 62 miles along the right bank and its

The Volga’s infrastructure was designed with huge dams equipped with double ship locks so that vessels of considerable size can travel practically its entire length.





*The Volga is Russia herself –  
her people, her history,  
her nature.*

*- Markov Yevgenly, 20th century Russian writer*

width averages only 5 miles – at some points, no more than 3 miles wide.

The city was founded in 1589 as a fortress and was called Tsaritsyn. Its purpose was to defend the southern boundaries of the Russian Empire.

In the 19th century, industry began developing widely during what is referred to as the “golden period.” Volgograd became a trans-shipment point with the building of a railway that connected the city with central districts of Russia.

In 1925 the city was renamed Stalingrad. During this time it became a trade and industrial center. Main events were the 1928 building of the first Russian tractor plant and a large shipyard in the southern outskirts of the city that produced about 90 river barges a year

During World War II, the city witnessed the Battle of Stalingrad, in which Soviet Union and German forces were deadlocked in a four-month stalemate for access to the river. One of the bloodiest battles in human history, hundreds of thousands were killed and the city was destroyed. This epic battle also represented a turning point in the war.

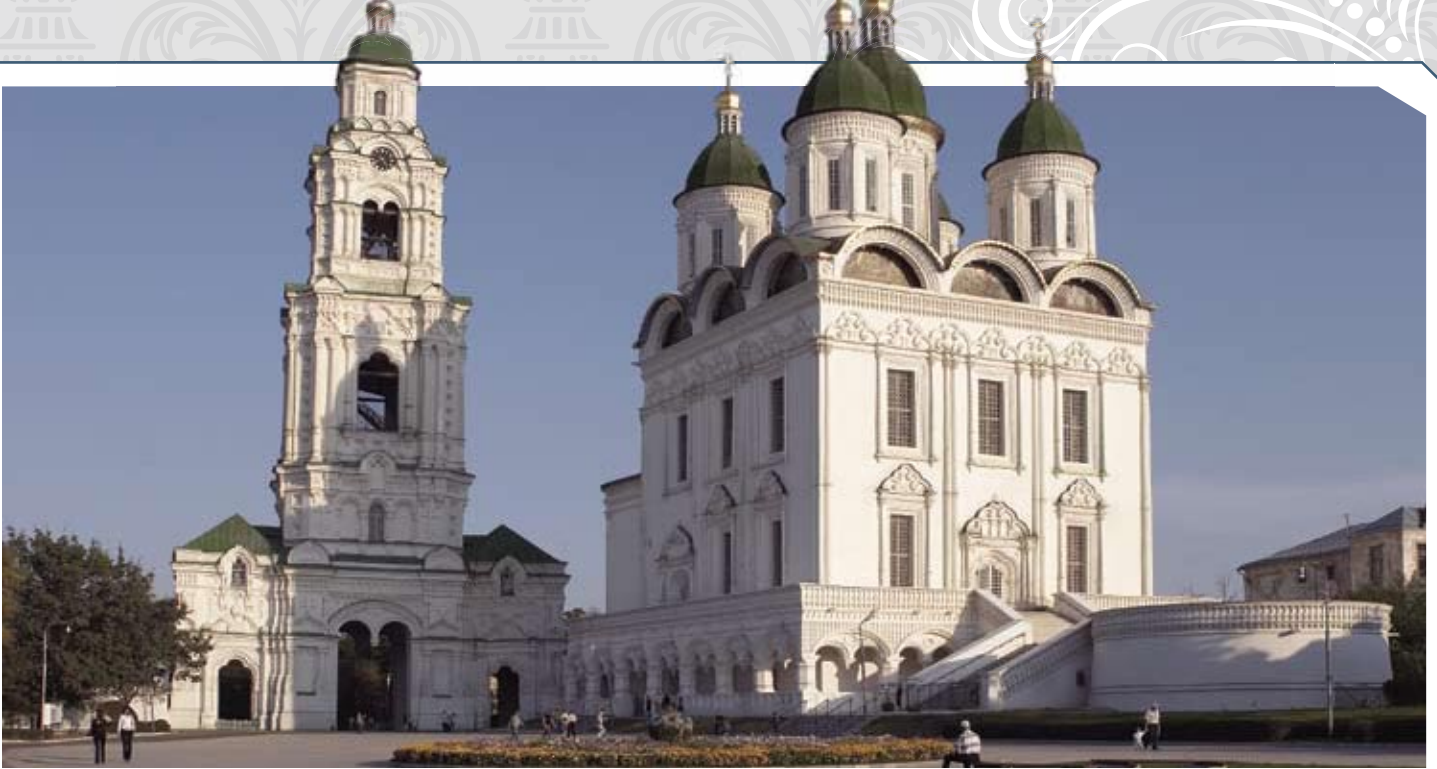
The city had to be rebuilt from scratch, as reflected in the classical Soviet baroque style of public buildings and broad avenues.

Renamed Volgograd in 1961, the city’s population today is about 500,000. It is a large-scale industrial center supporting steel and aluminum, oil, timber goods, building materials, machinery and food processing businesses. Slightly north of the city the largest hydroelectric station in Europe was built in 1958. With a capacity of 2.5million kW, it provides a great part of the country with electric power.

By far the most famous site of the city is the Avenue of Heros, a memorial complex built between 1959 and 1967 on Mamayev Kurgan, known as Hill 102 during the Battle of Stalingrad. Its centerpiece is a massive 236-foot statue – the largest free-standing sculpture in the world at the time. Dominating the skyline not only in terms of size, its hill-top location makes it visible from all points in the city.

As if guarding the peace, a woman wields a giant sword from atop the hill. Known as “Motherland Calls,” the statue commemorates the fallen and personifies the bravery and unity of the Russian force. The 200 steps up the hill to its base represent the 200 days of the battle from July 17, 1942 to February 2, 1943.

Also within the complex are numerous other statues, memorials and museums. The Pantheon houses the eternal flame and is inscribed with the names of 7,200 soldiers, representing the estimated one million who were killed. The extensive Museum of the Defence of



Stalingrad has dozens of exhibits including a model of the city post battle, which serves as a moving display of the human capacity for rebuilding. Upstairs, an impressive 360-degree panoramic painting illustrates the battlefield as it might have been seen from the top of Mamayev Kurgan.

Not just “Hero City,” Volgograd is an important cultural center. In the far corner of the city is the first lock of the Volga-Don canal, a 1952 feat of Soviet engineering. Nearby, carefully restored buildings of the original German district are reminders of centuries of cultural exchange between great European powers.

The city also hosts 26 colleges, technical and specialized schools; 10 libraries; and seven theatres.

### **Jewel of Russia’s south**

About 250 miles south of Volgograd, the city of Astrakhan marks the end of the river’s run. Located on both sides of the Volga on several islands in the river’s delta, it is one of the oldest Russian towns and the oldest city in lower Volga.

It was the capital of a Tatar khanate that became independent of the Golden Horde in the 13th century, and its location on caravan and water routes made it a trading center. Ivan the Terrible conquered Astrakhan in 1556, giving Russia control of the Volga. The city was built in 1558.

During the 17th century, the city was a destination on the famous Silk Road, a network of routes connecting the West (mainly Rome) to the East (especially China) for transporting

and exchanging all kinds of goods. It was even more significant for its intercultural importance. Not only goods were exchanged, but ideas, opinions, attitudes, traditions, philosophies and knowledge, making tolerance absolutely necessary and one of its most attractive aspects.

Today, the city retains its historical and cultural significance. More than 150 nationalities and ethnic groups live here and it serves as an important hub, linking Russia to Central Asia and Europe.

This sense of East-meets-West is echoed in a blend of different architectural types and various epochs, multinational environment and cultural traditions.

Astrakhan’s Kremlin was built from the 1580s to the 1620s using bricks from the ruins of the Golden Horde’s capital Saray Batu. Its two impressive cathedrals represent a mixture of traditional Russian church architecture inside, and baroque on the exterior.

Another unique feature is most of the territory lies below the Volga’s spring flood levels. The many dams and more than 50 bridges built in the city have led to the nickname “Venice of Russia.”

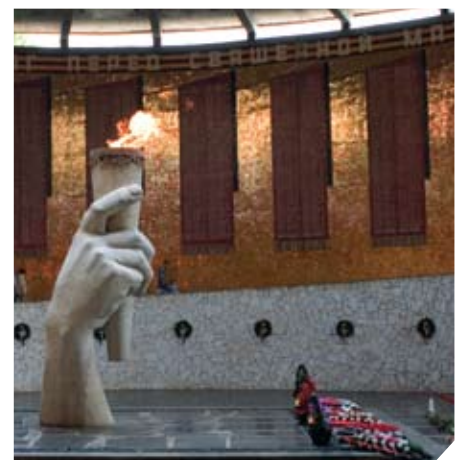
Astrakhan is a cultural center, too. The city’s education and arts are known for a conservatory of music, a teachers’ college, a medical college, and a national technical university. There are more than 30 secondary vocational schools, more than 30 technical schools, and the Caspian Fishery and Sea Research Institute. Five theatres, several museums and a number of famous writers and artists who

claim Astrakhan as their birthplace, enrich the cultural landscape.

The city’s economic life is closely connected with the river and sea through its shipbuilding and repairing industry. It is also the center of fishing on the Volga and Caspian Sea, with more than 20 species of fish. Its sturgeon resources account for three-fifths of Russia’s total and Astrakhan’s fame as capital of the caviar industry, with about 90 percent of the world’s production.

Due to vast plantations of melons, gourds, tomatoes, and other fruits and vegetables, another Astrakhan nickname is “Garden of Russia.” Abundant natural resources also include huge salt fields and other minerals.

With recent discoveries, Astrakhan is becoming famous as the onshore support base for Russia’s growing offshore oil and gas industry in the Caspian Sea.





## Leading industry

With about five percent of global reserves, the Caspian basin is one of the biggest oil regions in the world. Assumptions that all these resources are concentrated in the Caspian sectors belonging to Azerbaijan, Kazakhstan and Turkmenistan were recently proved wrong by Russia's second-largest oil producer OAO LUKOIL Oil Company (LUKOIL). Its efforts between 1995 and 2004 yielded six major oil fields in the northern Caspian, establishing the Russian sector as rich in oil resources as other areas.

The first of these to be prepared by LUKOIL for bringing commercially on-stream is Yuri Korachagin field. Its development required a number of major offshore facilities including an ice-resistant fixed processing platform (LSP-1) and adjacent living quarters (LSP-2) joined together by a 243-foot bridge.

Oil from LSP-1 will be delivered to the marine transportation complex, consisting of a Floating Storage Offloading system (FSO) and Single Point Mooring (SPM) via a 36-mile, 12-inch oil pipeline.

Installation and other work on these facilities was completed by J. Ray's Caspian operating entity through its long-standing fabrication base in Baku, Azerbaijan. Within the contractual scope of work, J. Ray performed transportation and installation of 14

foundation piles for LSP-1; the 1,005-ton, five-pile SPM substructure and 271-ton SPM deck; and their hook-up.

Additional J. Ray work included engineering, procurement, fabrication, transportation and installation of tie-in spools connecting LSP-1 and the SPM to the 36-mile subsea pipeline, as well as hydrostatic leak testing and flushing of the entire pipeline system. The pipeline was laid by J. Ray under a separate contract with LUKOIL in 2008. J. Ray also transported and installed the FSO, connected it to the SPM system and did testing.

"We are very pleased to continue to provide services to LUKOIL for this development, strengthening our cooperation as well as our presence within the promising and dynamically growing Russian offshore market," said Dan Houser, J. Ray's Vice President and General Manager, Europe and Central Asia.

In executing such projects, J. Ray and LUKOIL also cooperate in protecting the fragile environment, ecosystem and marine bioresources of the Volga Delta region against possible impact of hydrocarbon production operations. Supporting LUKOIL's responsible and extensive efforts is J. Ray's own comprehensive, integrated Environmental Management System (EMS).

"It helps ensure we comply with local law, minimize any negative impacts on the

environment and continuously improve so things are preserved for future generations," said Houser about EMS.

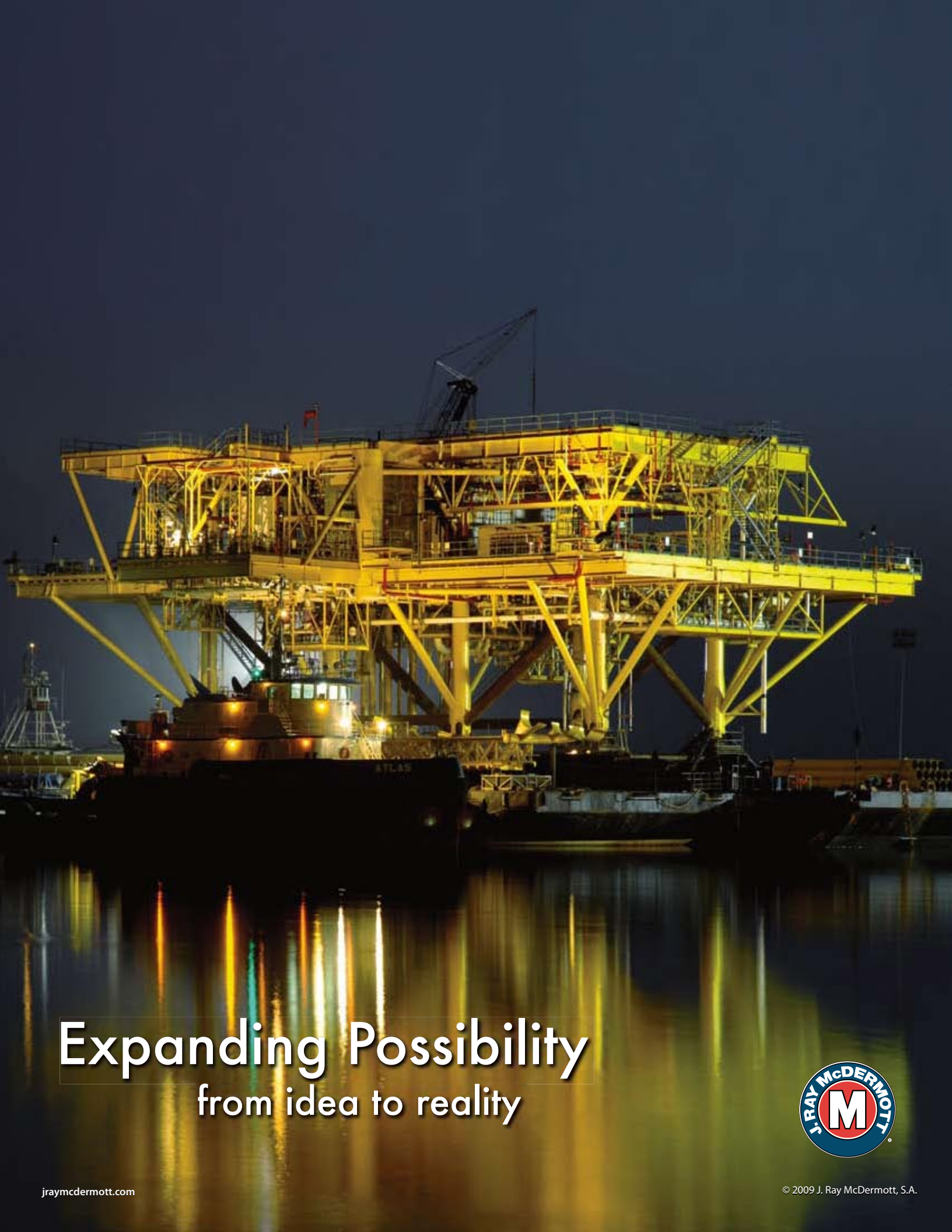
Also for the benefit of generations to come, Moscow-based LUKOIL is socially responsible in other ways. One example involves contributing over US\$1 million to rescue the city of Volgograd's plan to build a new church on top of the beloved Mamayev Kurgan in 2003. Soon after, LUKOIL allocated another US\$683,000 for reconstruction of the complex's Military Memorial Cemetery, which was in disrepair.

The company is also thoughtful and generous with emotional support, such as the new tradition it established in 2003. Oil industry representatives, relatives and friends now ascend the hill along Mother Volga as a group during annual celebrations of the victory in the 1943 battle, heeding Motherland's calls to honor unity and bravery.



Continued, **Nurturing Nature**, page 30





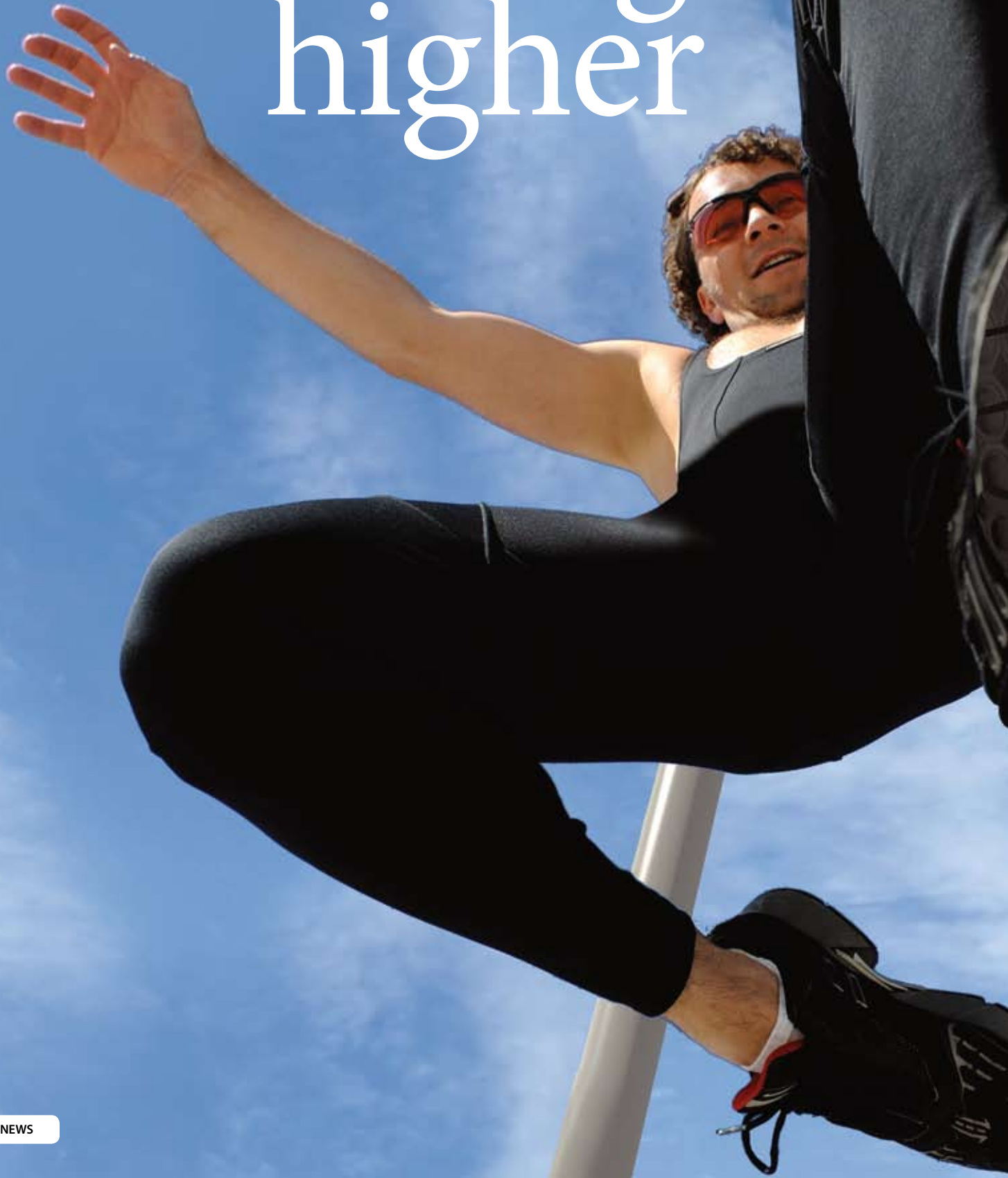
# Expanding Possibility

from idea to reality



SPECIAL FOCUS

# Reaching higher





**“You have to perform at a consistently higher level. That’s the mark of a true professional.”**

*- Joe Paterno, American football coach, now in his 60th year with Penn State*



# Winning ways

**A**s in sports, where the most points, greatest height, farthest distance, fastest time or strongest results win, excellence is the goal of business. Customers and their satisfaction are won by providing the best-quality products and services.

In today's turbulent and challenging environment, especially for the offshore oil and gas industry, competition is as fierce – if not more – as in any sport. The stakes are certainly higher; survival depends on it.

But it never comes about by accident or luck. In sports and business alike, excellence is always the result of high intention, constant attention, thorough preparation, dedicated effort, skillful execution and building on experience.

## Valuing quality

At J. Ray McDermott, the search for excellence begins at the core. As one of four fundamental values, quality is a guiding principle for everything we do. In other words, it's part of our culture.

Policy, procedures and practices bring quality to life with a customer focus. Simply put, delivering products and services that meet customer requirements, on time and within budget, is top priority. The overriding goal is to excel the first time, every time.

Overseeing the policy and its implementation is Global Director of Quality Kevin Ahern, regional Quality managers and a Quality

Council. Their efforts support and are supported by operating units throughout J. Ray.

"We deal with quality from two perspectives – product and performance," said Ahern. "Product quality is fulfilling our contractual obligations in meeting the customer's requirements.

"Performance quality is related to the effectiveness and efficiency of our project execution. It is keenly dependent on thoroughness and timeliness at the functional interfaces involved in large, complex EPCI projects. Each interface is like handing off the baton in a relay race. If it doesn't happen correctly, completely and precisely, you lose the competitive edge."

The two types of quality are dependent on each other. "Excelling in performance quality naturally drives first-time product quality, thus eliminating waste," Ahern added.

A passion for quality is very much a part of company heritage. During its long history, J. Ray has established an exceptional track record of project management and execution. Proven quality processes, procedures and practices in all phases of a project keep us on top of our game.

At J. Ray's fabrication facility in Dubai, for example, this strong framework led to superior levels of production. Over the first eight months of this year, Jebel Ali management and crews clocked 7.8 million fabrication man hours and 14,850 vessel days constructing, loading out and installing 15 jackets and 12-13 topsides totaling more than 45,400 tons; installing 14 infield pipelines (more than 28 miles) and three trunklines (almost 70 miles).

In Asia Pacific, a complex 115,432-ton topsides project – the largest integrated deck to be installed in Indonesian waters



“Desire is the key to motivation, but it’s determination and commitment to an unrelenting pursuit of your goal – **a commitment to excellence** – that will enable you to attain the success you seek.”

- Mario Andretti, automobile racing driver

– epitomizes J. Ray’s “Delivering Expectations” goal. Completion of this unique and unconventional load-out 28 months after the start of fabrication, according to plan and with 5.3 million hours without a lost time incident is a remarkable achievement.

Recognition also indicates the high value placed on quality. The J. Ray Project Excellence Award recognizes the teams that demonstrate excellence in project execution, as evaluated on a 14-point criteria that includes both quantitative and qualitative measures. Two tiers exist: Tier 1 represents major multi-year EPCI projects, and Tier 2 covers project scopes requiring a single discipline and those that fall in between.

For 2008, a Tier 1 award was presented for the Americas’ Poinsettia project involving design and fabrication of approximately 14,000 tons of jacket and piles, as well as transportation and installation offshore Trinidad of all platform components for the project by DB50. Tier 2 was awarded for Asia Pacific’s Guntong C project including removal and replacement of an existing 12-inch pipeline and riser, and a subsea tie-in offshore Malaysia.

#### Change for the better

As a core value, quality is also part of the company Charter, which focuses J. Ray’s strategic direction on continual improvement. This makes providing the best quality a never-ending journey.

The objective is to regularly and frequently look at our practices, processes, procedures and systems much like an athlete approaches his or her performance – identifying areas for improvement and setting challenging, but achievable, goals.

Some improvements are breakthroughs, but most are gradual and incremental, more like a marathon than a sprint. All improvements are equally powerful, however, in out-distancing and -performing competitors, whether in a sports or business arena.

But it certainly doesn’t come easily in either case. Continual improvement requires hard work, determination and discipline, especially when competition is fierce.

It also requires the right attitude.

“I guess I just don’t like to get stuck in my ways,” said Ricky Escalante, J. Ray’s Division Manager of Fabrication at Batam Island, Indonesia. “I’ve always hated to hear ‘this is the way we’ve always done it.’”

“My philosophy is to welcome and embrace change; be open minded to looking at things differently and considering other ways, be creative and agile about the possibilities. Instead of resisting or fearing change,



we need to seek it out. Identifying, sharing and incorporating good ideas and best practices makes us better and is a whole lot more fun than stagnating.”

He knows first-hand that it often means stepping out of a comfort zone.

“About 20 years after I was hired out of Louisiana State University to work at J. Ray’s Morgan City facility, I was given the opportunity to transfer to our Baku, Azerbaijan, operations. Growing up in southern Louisiana and working only in Morgan City up until then, I had no clue where Azerbaijan was or even how to pronounce it. A totally different culture and language barrier made it absolutely out of my comfort zone – like walking in the dark.”

All that newness, however was also “pretty exciting.” He made the move and it turned out great – “probably the most interesting and fun assignment I’ve had,” he reflected.

Already a “world traveler,” his move from Baku to Batam two years later was a little easier. Professionally, however, it was outside his comfort zone.

“Shortly after moving to Batam I was appointed as Division Manager over yard operations. It was the first time in my career that I was not directly associated with a project team. Being on the other side of the fence was a totally different view,” he said.

At the time, Batam was in the middle of a transition of its own.

**“Excellence is the gradual result of always striving to do better.”**

**- Pat Riley, former NBA player and coach, current president of the Miami Heat**

“Over the past four years, the fabrication facility has totally changed the way it works to a more project-centric approach,” Escalante explained. “Projects now have more control over their destiny, with needed support from fabrication. Before it was the other way around, which is the traditional approach.”

#### **Setting examples**

Not only have effectiveness and efficiency improved, but the experience is convincing.

“People are embracing change because they’ve seen things get better – safer, higher quality, more productive, more competitive.

It’s much easier to motivate people when they see tangible results,” he said.

Another effective continual improvement tool is the New Innovations program Escalante initiated this year. A committee of engineers and crafts people meets to brainstorm and reach out to other areas, companies and industries about different and better ways of putting steel together.

“The committee is identifying areas for improvement and has developed some new ideas for tools and methods,” he reported.

He doesn’t see himself as a pioneer, but as carrying on a strong tradition of change.

“If J. Ray’s early leaders hadn’t been receptive to change, we wouldn’t be at the level we are now – able to build a 23,000-ton jacket; load and transport it offshore; then launch, flood and set it up probably within one meter of where it needs to be,” he exclaimed. “When I think about it that way, it’s really impressive.”

His own tradition of change and continual improvement goes back to his childhood.

“My four sisters and brother are so inspiring for who they are and what they’ve achieved – a doctor and head of M.D. Anderson’s Endocrinology department; president of Monsanto’s vegetable division; head of nursing at a Houma, Louisiana hospital; colonel in the U.S. Army; and general manager of a Home Depot store,” he said with pride.

“They showed me the possibilities and taught me to never make it too easy on myself; to constantly reach high, be better, do more. I take that with me whatever I’m doing.”





# Building Opportunity from prospect to production





# Setting the pace

**E**xtending from J. Ray's Charter, a proprietary Integrated Management System (IMS) serves as the framework for putting values, goals and targets into action across the organization. By identifying the organizational structure and defining policies, procedures, responsibilities, processes and resources, IMS establishes the standards that all operating groups must comply with.

"The primary objective of IMS is to ensure both external and internal customers are satisfied with the effectiveness and efficiency of our products and services," said Mike Rees, J. Ray Corporate IMS Manager. "It does this by defining quality standards

and guidelines for all key functions we perform, essentially creating what we want to do as a company."

Operating units incorporate these standards into "Level 2" operating procedures that are translated into project procedures and work instructions and made available to the local personnel who implement them.

Regular reviews ensure each operating unit's IMS reflects current practices accurately, thoroughly and effectively. Regional and functional group audits are performed on an ongoing basis and progress is regularly reported to top management. This feedback loop encourages and facilitates sharing of lessons learned and best practices.

An annual company-wide audit measures the actual level of performance against the standards and reinforces a commitment to the standards.

"It's similar but much more rigorous, than certification audits most people are familiar with," said Rees. "We cover management and operating practices."

Following J. Ray's 22-page protocol, experienced auditors talk to a much larger percentage of the total population being audited—five to seven times greater—than most industry organizations include.

"Our auditors look at IMS records and reports, and talk to people at every level of the organization," Rees added. "The goal is not just to determine compliance with the standards, as industry audits do, but effectiveness. We want to find out how far down and to what extent each operating unit is working in accordance with IMS."

Audits for industry certification are important, too, as confirmation of meeting generally accepted external standards, and as a business improvement tool. Certifications maintained at J. Ray locations around the world include ISO, ISPS, ASME, OSHA, OHSAS and other third-party certification bodies.

## Gaining ground

By promoting, facilitating and enhancing standardized work processes; and measuring and monitoring progress, IMS also drives continuous quality improvement.

"It enables us to systematically identify improvement opportunities and concentrate on those that will make a real difference in customer satisfaction," said Rees. "In this way, we continually raise the level of our performance."

In its third year, the audit process is proving valuable in terms of continually improving results. Even more important are the gains in awareness and support throughout the organization, as employee comments from the most recent audits earlier this year indicate:

- *Audits are great. Everyone knows what the requirements are and audits remind them that they will be measured against the standard.*
- *Implementation of J. Ray systems ensures that we can work for any customer.*
- *We have improved 10 fold. It has become more of a bottom-up approach as opposed to top-down.*



Audits also have desired effects of keeping individuals and teams on track with company goals, values and standards, and with continual quality improvement as a priority.

### Sharing lessons

Another major factor in continual improvement is J. Ray's robust Lessons Learned system. Throughout each project, it captures helpful tips and precautions, adding them to an online database.

"We define Lessons Learned as knowledge gained from experience, successful or otherwise, for the purpose of improving future performance," Rees commented.

This knowledge sharing leads to better products and benefits performance quality by preventing others from re-inventing the wheel, similar mistakes and rework.

"It's a clear indication of how attention to quality saves time," added Rees.

It's also a sign of project success – the more lessons, the higher the success level.

The two projects earning J. Ray's 2009 Project Excellence Award (see page 19), for example, logged a total of about 100 learnings. These valuable entries cover essentially every project phase and function, and range from highly technical to general operations and project management issues, such as shift scheduling, document control and customer interface.

"Sometimes it's small and simple things that make the greatest impact," said Rees. "Lessons Learned helps make sure nothing is overlooked."





# Equipping improvement



Setting and exceeding standards and expectations are also the themes of operating and maintaining major equipment at J. Ray. Highest-level (Level 1) policies, procedures and guidelines cover these functions related to vessels as well as onshore and offshore lifting devices, wire rope and automatic welding facilities worldwide. Local Maintenance and Marine managers support these efforts.

"We are committed to ensuring our major equipment assets are properly maintained and safely operated," said Dan Sullivan, Global Director of Equipment & Machinery (E&M). "This means establishing and regularly updating standards and ensuring employees have the training and information needed to understand and follow the guidelines. We also provide guidance in identifying areas for improvement and solutions."

Tracked through J. Ray's Integrated Management System (see page 22), an annual audit monitors compliance. Areas also regularly conduct their own audits to identify discrepancies, corrective action and improvement opportunities on an ongoing basis.

Similar to industry standards, E&M's internal

guidelines are higher, more detailed, specific and enforceable than any external system.

"We believe we are a better company because of E&M guidelines and monitoring," he commented. "From our audits we know, for example, that offshore the frequency and severity of corrective actions from year to year are going down, both on an individual vessel and total fleet basis."

Evidence of that claim are qualitative comments from external inspectors and auditors that some of J. Ray's older vessels are kept in better shape than some competitors' newer vessels. That comes from a long tradition of regular vessel upgrades to increase their capabilities, keep up with changing technology and deliver on environmental and "comfort class" expectations.

Recent upgrades to the DB27, for example, included a complete engine room overhaul, with new engines, generators, modern switch board and cooling system.

Another current example is the upgrade plan for DB50 (see page 27).

In addition to specific standards for vessels, cranes, wire rope and other major equipment,

all J. Ray vessels use a common maintenance program. The best system and highest standards in the world, however, mean nothing without commitment, sharing and follow-up.

"We try to set a good standard for our areas to follow, but it's all the communications, great dialogue and sharing of lessons learned and best practices among our various areas that make the real difference," said Sullivan. "People want to do the right thing and want to strive to make things better. We're here to give them the tools, framework, suggestions and support they need."

**"Success is where preparation and opportunity meet."**

**- Bobby Unser, race car driver**

### Sparking excellence

Automatic Welding, part of J. Ray's Global Marine department, is also making great strides in continual improvement, especially through technology.

"Over the last few years we have faced several new challenges in automatic welding of offshore pipelines," explained Clyde Noel, J. Ray's Worldwide Manager of Automatic Welding. "From corrosion resistant alloy (CRA) pipelines to new requirements for sour-service trunklines and welding at our new Multi-Joint facility (MJF), we are pushing ahead to new levels of welding quality."

The latest improvements being adopted include the newest version of Lincoln Electric's cutting-edge PowerWave® technology.

"It provides improvements in arc control, start-stop points and diagnostic tools, and significantly expands available welding processes and methods," said Noel. "Another determining factor in adopting this technology was Lincoln's ability to provide required support."

The J. Ray Bug and Band System (JBBS) and in-house designed J. Ray Automatic Welding System (JAWS) are being upgraded with this new PowerWave® technology.

"Welders are noticing and appreciating the improvement in quality. Less re-work makes their job more effective and efficient," Noel reported.

### Special handling

CRA pipe is used to transport oil or gas that contains highly corrosive materials. If normal carbon steel linepipe is used for this type of application, the steel corrodes from the inside out in a relatively short time. CRA liners are made of material that is highly corrosion-resistant, but requires special handling for proper installation.

"To weld CRA pipe, we have to use a special consumable (welding wire) typically made of a material similar to that of the liner. Welding of such materials is more difficult because it's harder to get proper fusion," Noel said. "Additionally, the welding criteria, especially in the area near the inside of the pipe, is typically very stringent. This makes CRA welding much more challenging than conventional carbon steel welding on pipelines."

The latest CRA pipeline welding has produced vast improvements in quality, as well as in production. In Asia Pacific, welding parameters and welding methods have been significantly enhanced on CRA





pipelines. The hallmark of a 19-mile installation of 10-inch CRA pipeline by DB26 in Malaysia was a record lay rate of 88 joints in one day.

In the Middle East, PowerWave® technology is overcoming the challenges of new, stringent acceptance criteria for sour service installations. Like CRA, these installations include concerns about corrosion, especially near the internal surface. In the last few years, the requirements have become more stringent, making welding more difficult.

“With implementation of PowerWave® technology, welding procedures have been developed at Jebel Ali’s new welding facility that are producing welds of exceptionally high quality this year on pipeline projects in the area,” Noel added.

### Multi-purpose improvement

In the Americas, area welding and operations personnel formed a unique team to design and fabricate a Multi-Joint Facility (MJF) in Morgan City. This facility was used to fabricate quad-joints for J-Lay installation on the Chevron Tahiti project completed earlier this year. The project required production of the highest quality welds to-date for Steel Cantenary Risers, as well as flowlines operating at water depths of 4,000 feet in the Gulf of Mexico.

The benefits of the MJF in project execution are significant.

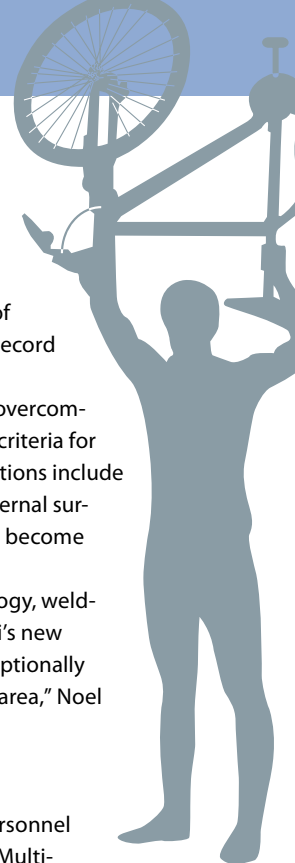
“Before the MJF, quad joints for J-Lay work had to be fabricated by someone else,” Noel said. “Having our own quad joint facility allows customers to deal with only one pipeline welding contractor. Additionally, we can combine some of the development work that would have been done twice – by the quad joint sub-contractor and by us – and in this way be more efficient. The customer gets the high-quality results we are able to produce on all welds, instead of just the welds made offshore.”

Plans to expand use of the MJF to other types of work, such as fabrication of tendons for deepwater installation, are also being developed.

“A typical tendon project consists of sections of pipe, for example 240 feet long, that are joined together with connectors in the field to reach the sea floor,” Noel explained. “These ‘tendons’ are used to position offshore structures without the use of more costly structural connections. Tendon fabrication includes substantial differences in welding requirements.”

While technology like MJF and PowerWave are great tools for raising quality levels of work, the everyday, never-ending efforts of the people developing and using the technology are the real keys to success.

“Developing better ways to weld is not just about the latest machinery to do the work better and faster,” said Shaju Nair, J. Ray Welding Technology Council member and Principle Welding Engineer in Dubai. “It is about improving all aspects of the job – from material flow to the welder, shift patterns, safety, training, quality standards and means of repair. With all of us focusing on everything we do, identifying and sharing about how we can improve our welding practices, we become safer, more effective and more efficient.”





## Fleet flexibility

As part of its 25-year fleet-renewal strategy, J. Ray is upgrading its primary Gulf of Mexico vessel, DB50 (inset photo, below) is capable of lifting loads up to 4,400 tons and laying pipe via Reel-Lay and J-Lay up to 20 inches in diameter, in more than 9,000 feet of water.

Under the plan, DB50 will receive new thrusters and an increased electrical power supply, making the vessel more competitive for future deepwater project work in the Gulf of Mexico.

Specific upgrades include replacing the entire power plant with new diesel-engine generator sets totaling 19.2 megawatts, new switchboards and a state-of-the-art power management/alarm system. The existing four 2.4 megawatt controlled pitch thrusters will be replaced with six new 2.4 megawatt fixed pitch/variable AC drive thrusters, providing 44 tons of thrust each. In addition, the freshwater and saltwater cooling system and supply/exhaust ventilation system will be upgraded in both engine and thruster machinery spaces. The dynamic positioning control system was upgraded in 2007 with new hardware.

"This investment in DB50 will add tremendous value to the vessel's capabilities, which will ultimately prove beneficial to our customers' deepwater projects," said John Nesser, J. Ray's Executive Vice President and Chief Operating Officer.

Other fleet upgrades include the conversion of vessels that were part of J. Ray's acquisition of Secunda to subsea support capabilities.

Originally designed for cable-laying,

*Emerald Sea* (photo below) underwent upgrades in late 2007 that removed the cable-splicing shop on the cargo deck and replaced it with a 10,764-square-foot deck area for storage of lay spreads, dive spreads and other equipment and systems. It was equipped with a saturation dive system for subsea construction support, a 100-ton specialized crane for lifting subsea equipment to and from the sea floor during construction work, a moonpool, and a helideck to facilitate in-field personnel changes. Living quarters increased from 56 to 110 to accommodate the multi-disciplinary crews necessary for subsea work.

In its new, improved and more versatile form, *Emerald Sea* has assisted on a number of J. Ray projects, including saturation diving offshore Malaysia, and saturation diving and ROV operations offshore Vietnam.

*Thebaud Sea*, *Bold Endurance* and *Agile* also have modifications planned to give them subsea capabilities. And three new saturation diving systems will be added to the J. Ray fleet.

In addition to upgrades, the long-term strategy calls for replacing and adding vessels to achieve the goal of a high-tech, mobile, flexible, versatile and efficient fleet that is able to respond to different needs in different areas of the world.



## MASTER WELDERS

Another way of improving skills is encouragement and support of advanced training and education. To that end, J. Ray's Welding Technology Council sponsors two employees per year to attend the Masters in Welding Engineering program at Cranfield University. The U.K. college is one of only two institutions in the world to offer an advanced degree in Welding Engineering.

During the two-year program, students complete three components, including classroom lectures, tutorials, case studies and lab demonstrations; a design project requiring review and analysis; and individual research (Masters Thesis) on a topic relevant to J. Ray.

"This training is aimed at key personnel with customer interaction on both a technical level and in developing processes to achieve project requirements, ultimately making our company more competitive and more successful," said Allan Middleton, J. Ray's Chief Welding Engineer.

Currently, four J. Ray welders are pursuing the degree at different stages and Shaju Nair, Principle Welding Engineer in the Middle East, recently became the first graduate.

His thesis, "Welding of Sour Service Pipeline under Lateral Buckling Condition," was particularly valuable in enabling him to immediately apply what he learned to critical projects.





# Learning excellence

**T**raining by its very nature is about change and improvement. It provides information, knowledge, awareness, encouragement, skills, tools and other resources that enable trainees to do something new or further develop existing knowledge and capabilities. It's vital in the pursuit of excellence because it regularly improves everyday efforts of employees to higher levels of performance.

Training also strengthens the company's ability to grow and improve, continuously becoming more competitive, faster, safer and better. That's why training at J. Ray involves all areas and levels – craft and crews, technical and engineering, IT and business, management and leadership, as well as personal effectiveness.

In turn, training itself is continually improved. Most recently this led to increasing its cost-effectiveness by shifting away from dependence on external vendors to using internal capabilities on more programs.

J. Ray's graduate engineer program has used this approach for many years. It creates the optimum teaching environment, as trainees hear first-hand learning and real J. Ray stories from their own managers. And it's a win-win; managers enjoy the opportunity to transfer their knowledge.

All regions have a structured process of onboarding newly graduated engineers that begins within their first few months of employment.

Starting early builds a learning culture that

stimulates continuous improvement and growth for individuals and the company alike.

In Asia Pacific, change agent Ricky Escalante agrees. "We need to give people the best tools as soon as possible so they can meet expectations we have of them," he said.

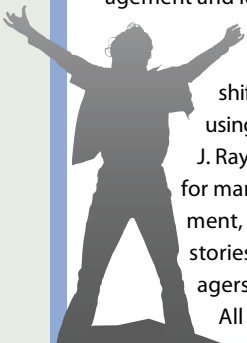
One program, established through Batam's Detail Engineering group, reaches out to lower level employees interested in improving and advancing.

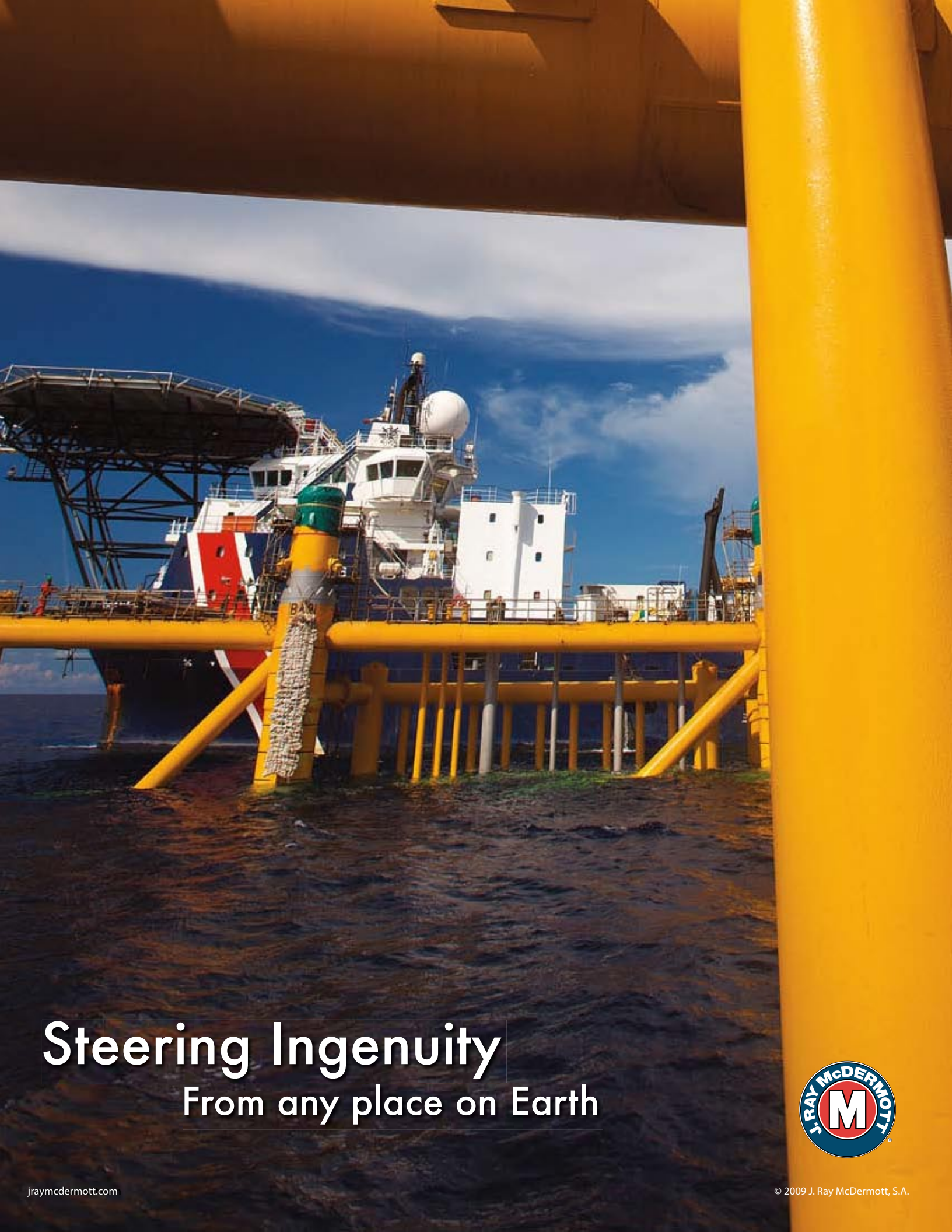
"Several janitors are now working as drafters," he reported. "One is even working on his own to get his engineering degree. And it's obvious he's more open to change and improvement. He's very motivated about taking on new responsibility, and much more open minded than he was several years ago."

Another program is bringing the Batam facility very close to a change of epic proportions. "Sometime this fall, we'll have the first female welders – ever in Batam for J. Ray," said Escalante. "Once hired, they'll go through a 60 to 90 day orientation program as a group to ensure a smooth transition."

Motivation for his "Women in the Workplace" initiative is part necessity, as it gets more difficult to find qualified people, especially welders, with companies in the region getting busier. But it also stems from personal desire.

"In an area of the world that's not as progressive as others, we already have several women in engineering and administrative roles here in Batam," he said. "I know that women have a strong and accomplished place in this company. I'm very proud of that and want to build on it."





# Steering Ingenuity

From any place on Earth





# Nurturing

From page 14

## NATURE



Near the end of the Volga's run, Europe's largest river system splinters into an intricate maze of some 500 channels and streams before draining into the Caspian Sea. Starting about 40 miles above Astrakhan, Europe's largest inland river delta stretches almost 100 miles in length and more than 10,500 square miles in total area. Unique natural landscapes and vast resources make it one of the most interesting and picturesque places in Russia.

Mostly below sea level, 92 feet at its lowest point, Volga Delta's terrain includes meadow, riverside forests, reed beds, islands, river branches and sand dunes from strong winds that often sweep across the delta. Its relief constantly changes, with the sea and silt-carrying flow of the Volga River continuously creating new islands and canals.

Thick vegetation, ranging from shoreline to desert plants, nourishes some of the most exotic flora and fauna in the world. More than 30 mammal species roam the land and marshes, which provide refuge to beavers and otters. Millions of birds from hundreds of species frequent the delta, including pelicans and flamingoes that are found nowhere else in Russia. Volga Delta is also the only



Russian home of the lotus, or "Caspian rose," seen as huge carpets of blue-green lily pads and extraordinary size, intensity and aroma of pink flowers spread across the waters from July to September. Considered a symbol of purity and nobility, the lotus has been known in the delta for more than 200 years.

Abundant and diverse fish – more than 70 species – feed Russia's people and attract anglers for sporting events. Another sport in early spring is fossil hunting for prehistoric ammonites that are prevalent here and on the Volga River banks.

To protect and preserve the unique natural complexes of the Volga delta two *Zapovedniks*, the highest category of nature conservation in the world, have been established.

### Astrakhan State Nature Biosphere

Astrakhan State Nature Biosphere, or Astrakhansky Zapovednik, is one of the first Russian nature reserves, founded in 1919. Located at the southern edge of the Volga delta, about 70 percent of it is covered by water; 90 percent during spring floods.

Referred to as "birds' hotel," more than 250 avian species live here, including 27 endangered species such as the white-tailed eagle, osprey and Saker falcon. Mute swans, once nearly extinct in the region; Dalmatian pelicans; black stork and flamingo are indigenous to this delta region. Another unusual phenomenon is the sharing of nesting sites by white herons, egrets, night herons, spoonbills, ibises, pond herons and other water birds. Away from the water, forest birds include wood pigeons, golden orioles, tree sparrows, reed buntings, Savi's warbler and cuckoos.

On the islands, mammals range from wild boars, the reserve's largest animal, to the tiny harvest mouse, as well as foxes, raccoon dogs, weasels, mink, beavers and muskrats. The reserve is also home to frogs, pond turtles, rat snakes, two species of grass snakes and sand lizards.

More than 60 different river and lake species of fish populate the reserve, many in the carp family. As with birds, the reserve plays an important role in migration, as fish travel between the Caspian Sea and spawning grounds along the Volga River.

Many of the 44 species of submerged aquatic plants are rare. Drifting on the surface of the water are yellow floating heart, yellow water lily and frog-bit. The most spectacular sights are lotus blossoming on huge fields of lily pads in the summer.

Since its formation, the reserve has tripled in size and has become a wetland area of international significance. This distinction earned it status as a United Nations Educational, Scientific and Cultural Organization "Biosphere Reserve" in 1984.







## Bogdinsko-Baskunchaksky Reserve

In contrast to one of the oldest, Bogdinsko-Baskunchaksky Zapovednik is one of Russia's newest reserves. Established in 1997, it covers 73 square miles of plains east of the Volga River in the Astrakhan region, and has its own distinguishing natural features.

Mountain Bogdo, a salt dome, is the highest point in Astrakhan, rising more than 600 feet above the surrounding grassland. Created by karst processes, a web of basins, ravines, sink holes, rock pillars and grottos remains. Beneath the surface, about 30 caves have been discovered and many more are expected to be found.

In some cases, caves don't even exist yet. As water slowly carves through underground rock, caves are constantly being formed. A fault line running directly through the reserve also makes the geology dynamic, gradually pushing the mountain upward about one millimeter per year.

In the shadow of the mountain is 47-square-mile Lake Baskunchak. This largest salt lake in Russia has more than 25 streams flowing into it. Many minerals and salts appear to tint the water, ranging from pink in the south to light blue in the north. Also due to the fault line, the lake falls at the same rate the mountain "grows."

Along with three freshwater lakes in the reserve, Baskunchak is an important habitat for many wildlife species, both migratory and resident. Hamsters, gerbils, ground squirrels and other small rodents thrive in this arid habitat and attract a wide range of species that prey on them – foxes, jackals, polecats, wildcats and numerous birds of prey.

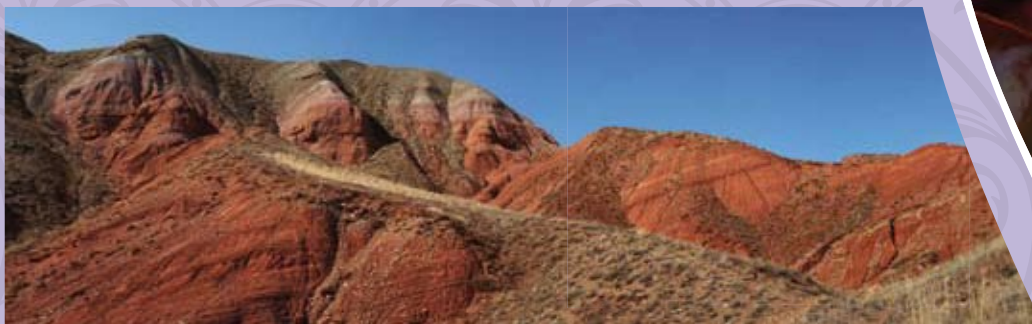
Each year thousands of saiga antelope travel through the region, as do many avian species, in their seasonal migration. Pairs of demoiselle cranes, endangered

worldwide, enter the reserve each spring to begin courtship rituals. Mating for life, these crane families return to build their nests in the same sites year after year.

The surrounding plains are also of interest. Many "microlandscapes" around the lake – steppes, desert, caves and salt marsh – offer diverse features. Three to four inches of light brown loamy soil cover the ground; and mineral-rich clays paint a palette of yellows, reds, grays, blues, greens and browns.

These varied environments support diverse plant communities on the reserve's dry, alkaline plains – various grasses; herbs such as sage and thyme; and orchards of elms, maples, oaks and fruit-bearing plants. Ten rare or endangered plants grow in the reserve, including several varieties of tulip, short-leaved asparagus and the carnivorous Venus Flytrap or "catchfly."

Both reserves reflect the Russian people's awe, adoration and appreciation for Mother Volga and her many gifts.



# Energy Events 2009

## Upcoming energy events around the world

### AFRICA

#### Africa Oil Week

November 2-9, 2009

BMW Pavilion, Cape Town, South Africa

This week-long event highlights Africa's oil exploration success and new venture opportunities along the value chain.

### AMERICAS

#### Deep Offshore Technology International

February 2-4, 2010

George R. Brown Convention Center, Houston, TX USA

Industry leaders discuss issues, introduce technology and share lessons learned about working in deepwater and ultra-deepwater regions around the world.

#### Subsea Tieback Forum and Exhibition

March 2-4, 2010

Moody Gardens Hotel and Convention Center, Galveston, TX USA

This event focuses on sharing knowledge and experiences to improve the quality, safety and economics of this growing sector of the oil and gas industry. Visit J. Ray at booth #509.

#### Offshore Technology Conference

May 3-6, 2010

Reliant Park, Houston, TX, USA

OTC is the world's foremost event for the development of offshore resources. Visit J. Ray at booth #2169.

### ASIA PACIFIC

#### Oil & Gas Outlook 2009 Asia

November 2-5, 2009

Grand Hyatt, Singapore

Attended by oil and gas company senior executives and service providers from around the world, this event provides an effective environment for generating new business.

#### Asia Offshore Operation & Development

November 16-19, 2009

Swissotel Beijing Hong Kong Makau Center, Beijing and Qingdao, China

Covering current issues and economic climate, the theme of this event is "Redefining the China deep offshore market."

#### Offshore Asia 2010

March 16-18, 2010

Kuala Lumpur Convention Center, Kuala Lumpur, Malaysia

Asia's premiere conference for offshore technology and subsea applications showcases the latest technology and foremost business ideas shaping the future of the industry.

#### China Offshore Summit

March 24-26, 2010

Beijing, China

During this fifth-annual event, industry decision makers will discuss deepwater development and technology, new achievements in offshore engineering and other topics.

### CENTRAL ASIA

#### Mangystau Oil & Gas 2009

November 3-5, 2009

Mangystau Regional Exhibition Business Center, Aktau, Kazakhstan

The 4th annual Mangystau Oil & Gas event is aimed at regional oil, gas and petroleum industries. This year, the first OilTech Mangystau conference will be held in conjunction with the exhibition, offering a platform for discussing vital technical issues, challenges and solutions.

#### OGT Turkmenistan International Oil & Gas Conference

November 17-19, 2009

Ashgabat Exhibition Place. Ashgabat, Turkmenistan

The 14th Turkmenistan International Oil & Gas Conference aims at strengthening international cooperation and encouraging investment in the development of Turkmenistan's oil and gas industry.

### EUROPE

#### Deep Offshore Technology International Conference & Exhibition

November 3-5, 2009

Grimaldi Forum, Monte Carlo, Monaco

This unique and significant deepwater technology event specifically focuses on day-to-day operations, addressing solutions to virtually every technology issue deepwater operators face.

### MIDDLE EAST & INDIA

#### Offshore Middle East 2009

October 27-29, 2009

Bahrain International Exposition & Convention Center, Manama, Bahrain

The three-day event highlights the growing Middle Eastern oil and gas market, and issues concerning its development and technology.

#### OCEANTEX 2010

October 27-29, 2009

March 3-6, 2010

Bombay Exhibition Center, Mumbai, India

This fourth-annual event will showcase areas and opportunities for investment, technology and entrepreneurship now open for global players, as well as India's own public and private sectors.

#### Offshore Arabia

March 29-31, 2010

Dubai International Convention and Exhibition Centre, Dubai, UAE

Offshore Arabia provides an excellent overview of a cross section of key issues in the energy industry and the environment.

#### 6th Mediterranean Offshore Conference & Exhibition

May 18-20, 2010

Alexandria Conference Centre, Alexandria, Egypt

MOC brings together hundreds of companies and attendees from both the Northern and Southern shores of the Mediterranean Sea.



# Integrating Complexity

from upstream to downstream

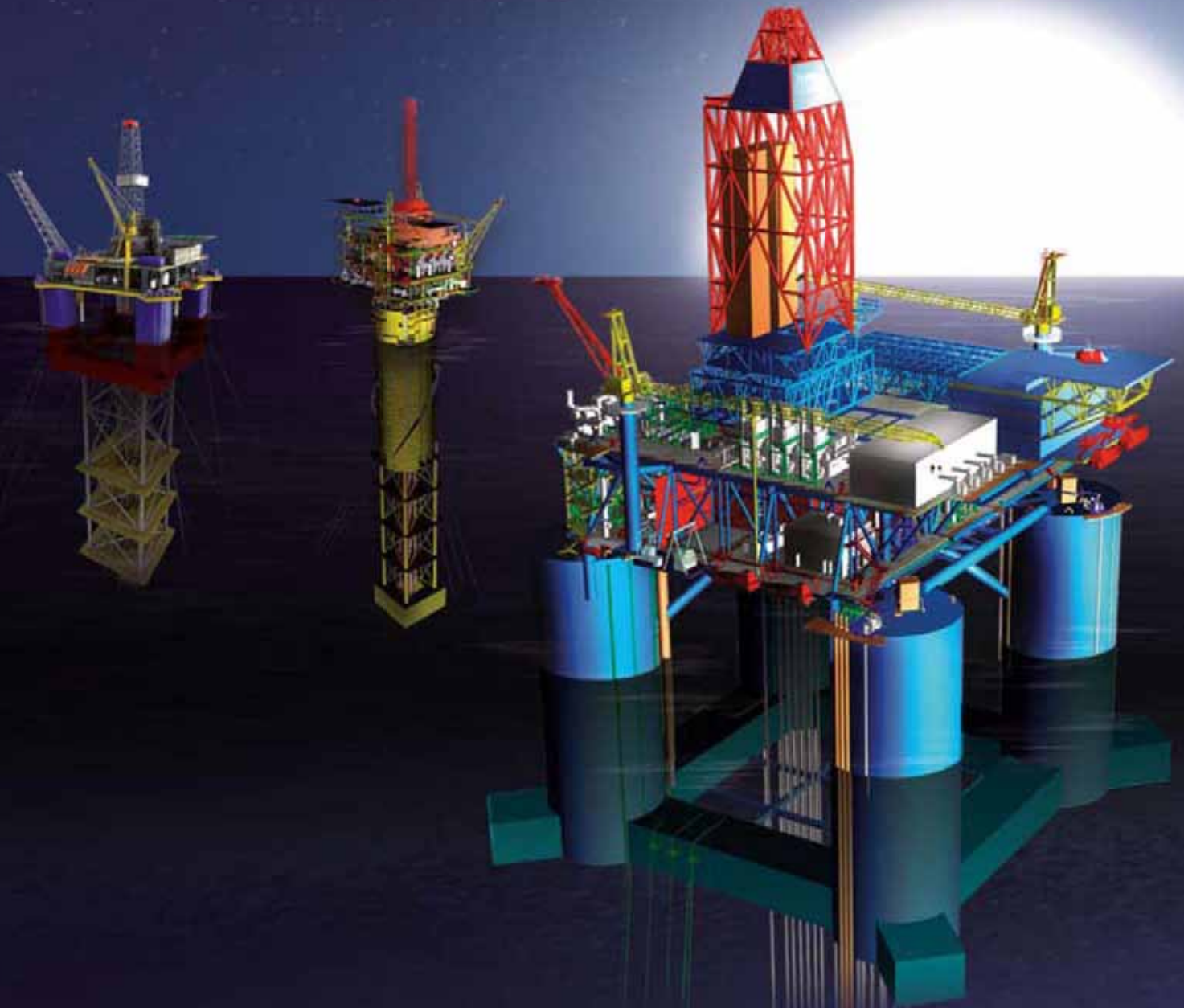


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