
FMC Technologies
WellLinked
PEOPLE / TECHNOLOGY / VISION
Issue 04 2014
+PLUS
Spotlight on Shale
Positive impact
Across FMC Technologies, our people celebrate Impact Quality and how their journey is helping transform our culture

A word from our **Chairman, President and CEO**

Welcome to the fourth and final issue of WellLinked *in 2014. As we approach the end of the year, it is a natural time to reflect on the current market environment, where we are as a company, and the year ahead.*

The oil and gas market is cyclical and has changed since you received the last issue of *WellLinked*. With the recent softening in oil prices, operators are under increased pressure to improve their returns and they are looking at ways to reduce their capital spending.

We continue to work with our customers to find solutions that will improve their performance. The world still needs oil, and in the longer term, oil and gas fundamentals remain strong. Nobody is predicting a shift away from deepwater and our customers need to develop their discoveries. Our integrated technologies and services can help them.

We are a trusted partner to our customers and we can work with them to use new technology and standard systems to drive costs down, reduce lead times, and further strengthen our partnerships for the long term.

Solid foundations

The other way we can help operators increase their returns is through improving our own execution. We have made solid progress over the past year, improving on-time delivery and minimizing quality escapes.

We need to build upon this foundation in 2015 with a focus on reducing lead times, lowering our costs and further driving standardization.

New challenges

You should be extremely proud of the work you have done to contribute to our progress and to sustain FMC Technologies' market leading position.

You are part of an extraordinary company, but we are never going to become complacent about our position. The challenge I want to set for you now is to build on the foundation of our improvements and be even better in 2015.

Thank you for your hard work and commitment throughout this year and I look forward to working with you to make 2015 another exceptional year for FMC Technologies.

John Gremp,
Chairman, President and CEO, FMC Technologies

WellLinked

FMC Technologies' global employee publication

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A CELEBRATION OF QUALITY
Impact Quality is transforming the culture across our company. Our front cover shows images of a number of our employees from our Brazilian locations.

Editor's letter

It never ceases to amaze me when I hear first-hand about the incredible work we're doing at FMC Technologies, and the dedication our people demonstrate every day. That makes me proud to belong to such a great company, which leads the market both with our technological achievements and in our constant quest for improvement. WellLinked *shares our strategy and our successes with you, and in this action-packed issue we have plenty to highlight.*

Our Spotlight *(starting on page 19)* is on the shale oil and gas revolution, where Surface Technologies has created an integrated vision that will turn the industry on its head. Johan Pfeiffer, Vice President of Surface Technologies, describes our role in that revolution and how we are meeting complex customer needs.

We also look at this year's Impact Quality Celebration of Commitment events at more than 120 of our sites *(pages 8 and 9)*, and hear about how the new No-Touch policy is another major milestone on our journey toward Destination Zero *(pages 14 and 15)*.

I was thrilled that *WellLinked* won both a Lantern Award and an Award of Excellence at the prestigious BMA Houston 2014 Lantern Awards, which recognizes excellence in business communications. This magazine is all about you and your stories, and it's my privilege to share these with you.

Thank you for taking the time to tell us about your outstanding work, and remember, if you have a story to share, please reach out to me.

Here's to another great year in 2015.

Until next time. . .

Nicola Mawer
Editor,
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Updates from our business segments

Tore Halvorsen

Senior Vice President, Subsea Technologies

SUBSEA TECHNOLOGIES

I am very pleased that we have continued our strong financial and execution performance through the third quarter, setting us up for 2014 to be the best financial year ever for Subsea Technologies and helping the company toward another year of strong growth.

During the third quarter we implemented two new standardized metrics for Subsea Technologies – On Time Delivery (OTD) and Average Days Late (ADL). These both underpin our Fifth Absolute of Quality – the purpose of quality is to create customer success, and not just satisfaction. While we have a small number of legacy projects currently affecting our performance, becoming the industry leader in OTD and ADL is our clear target. This will add another step change to our already strong market and customer position. If we continue our improved execution performance, I am convinced that we will reach this target during 2015.

As I have written before, standardization is the buzz word in subsea, and this time I believe it's for real. The operators understand the cost and scheduling benefits that standardization brings. I also believe operators are starting to accept the consequences of standardization in terms of less detailed customer specifications and more acceptance of industry standards.

We are in the best possible position to proactively lead and be prepared for this transformation to a more standardized – or industrialized – subsea business. We have the largest number of customer alliances. Our organization is based on global product lines. We have common processes and we have a very well organized supply chain supporting global standards.

I genuinely believe it is possible to get to a stage where any subsea field is configured by our standard building blocks and seamlessly integrated to a system at the "assembly line."

I am encouraged to see that subsea boosting prospects are increasing after what has been a period of low activity. I believe escalating costs in new developments, combined with the lower oil price, have stimulated greater interest in subsea boosting for mature fields. We have never had so many solid boosting prospects as we have right now, and we have never executed so many tenders. It is an exciting period for our Subsea Processing growth platform.

It has been an extraordinary year for Subsea Technologies and I greatly appreciate your enthusiasm and drive to maintain our market-leading position and to make FMC Technologies a great place to work.

Thank you. I wish you all a happy and successful 2015.

Johan Pfeiffer

Vice President, Surface Technologies

SURFACE TECHNOLOGIES

In this issue of *WellLinked*, you will have the opportunity to read more about the surface organization and our strategic progress *(starting on page 19)*. Our surface business is continuously changing for the better. Financial results are stronger than ever and despite some uncertainties around oil prices, our activity remains robust.

In early October, our Board of Directors visited our Fluid Control operations in Stephenville, Texas. Jon Landes and his team did an outstanding job showcasing the progress we have made in recent years. The operational and financial results of this business are just remarkable and I believe our Directors left with a great impression of our capabilities.

Our International Surface Wellhead business continues to perform exceptionally well. For their performance in 2013, the APME leadership team, represented by Chiew Poh Loh and Keith Dempster, received this year's Joseph H. Netherland Chairman's Award *(see pages 10 and 11)*. The team can't be rewarded two years in succession, but 2014 is going to be even better than 2013.

We are making progress in our Surface Integrated Services businesses. Our focus on standardization in Surface Wellhead and rental asset utilization is now sustainably improving our financial performance. Tim Eaton's leadership in this area is very much appreciated. Though our wireline operation is growing rapidly and we are continuously improving the performance, we have not grown our flowback business as much as we would have liked. In addition, we have not yet made enough progress in integrating services and although we have had some initial success, this will remain our main market objective in 2015.

In Measurement Solutions, we continue to focus on the upstream products and system opportunities. Clearly this is an important component in our strategy to become a production-focused company. We will continue to increase our market efforts in these areas.

We are in the process of setting up a new Loading Systems operation in Singapore led by Renaud Ledevehat. As our activity is switching toward larger projects in the Far East, this was a needed improvement to the organization which allows us to be closer to our customers and suppliers.

Thank you for your interest in Surface Technologies and I am looking forward to a successful 2015.

A word from...

Mark Scott

Vice President, Administration

THE IMPACT QUALITY JOURNEY

Our vision is to be the undisputed leader in our markets. That means we have the responsibility to lead the industry into new levels of performance and reliability. With that responsibility in mind, we started our Impact Quality (IQ) journey six years ago. Now that we've adopted IQ, we are a different company and we work with the rigor and the discipline we've learned from our pursuit of quality. Throughout the organization, we travel similar paths on our transformation journey embracing the Five Absolutes of Quality.

This year, I was privileged to take part in a number of Celebration of Commitment events around the world. Employees used the occasion to mark just how much they have changed our quality culture. They took the time to reflect and celebrate on how far they have come and to recognize their teams.

We are all moving forward on our quality journey. The difference a year makes is remarkable. In 2013, there were global celebrations reaffirming our commitment to IQ, celebrating the progress we'd made, and building energy for the challenges ahead. This year, the celebrations reached a new level. We are beyond the education and learning phase and we're now changing the way we work.

In several locations, unique group activities and teambuilding exercises were designed to provide educational and fun experiences demonstrating IQ tools at work. Other departments used the day to get together and reaffirm their commitment by working collaboratively through new exercises and engaging in joint learning.

At each location I visited, there was something a little different. Some were celebratory, others were more tactical, and others were a blend of the two. Regardless, the events reflected the cultural diversity of FMC Technologies and were all linked by the common theme of Improving Execution. As an organization, we are taking ownership of this transformation and we are building momentum.

We're far enough along now to see improvements in our processes and to reap the benefits. Are we there yet? No, but our quality transformation helps to define us. We can mark our progress, we know where we're going, and we will keep working and improving.

We are in the next phase of our quality journey. Self Managed Impact Quality (SMIQ) is about taking local responsibility to manage the process and to change what we do every day in relation to quality. The true measure of our transformation is for all of us to take it personally. We want to change the way we work in line with the IQ principles, putting into practice the methods we have learned. That is the next step on our IQ journey.

Everyone benefits from IQ. We contribute to our customers' successes by forging a culture that drives their results through our superior products and services. And for all of us, FMC Technologies becomes a better place to work. The IQ environment develops a culture that encourages growth and supports our values. IQ helps people to grow their careers, develop, and make a positive contribution to our company's success.

Read more about this year's IQ Celebration of Commitment on pages 7 to 9.

News

For further details on these stories and other news go to: www.fmctechnologies.com

New board member appointed

Houston, TX, United States

Peter Oosterveer, Chief Operating Officer of Fluor Corporation, has been appointed to FMC Technologies' board of directors effective February 1, 2015.

Fluor Corporation is a FORTUNE 500 company that delivers engineering, procurement, construction, maintenance, and project management to governments and clients in diverse industries around the world.

A 25-year Fluor veteran, Oosterveer has considerable international client and project expertise in the energy and chemicals industries with previous executive stints managing Fluor's chemicals operations for Europe, Africa, and the Middle East.

He has a Bachelor of Science degree in Electronics from HTS Leeuwarden in the Netherlands, and is a graduate of the Thunderbird University International Management Program, the Stanford Graduate Executive Business School, and the Fluor Management Institute.

Lantern Award winners

Houston, TX, United States

WellLinked was a double prizewinner at the annual Lantern Awards of Texas, held in Houston in November.

Our employee magazine won the Lantern Award and an Award of Excellence in the magazine, print or electronic category. FMC Technologies' annual report also picked up an Award of Excellence.

The honor for *WellLinked* follows our customer magazine *Ahead's* success in the same event last year.

The Lantern Awards of Texas is hosted annually by marketing body Business Marketing Association (BMA) to highlight top-quality creative and strategic business-to-business communications.

New subsea awards

Houston, TX, United States

FMC Technologies received two new subsea awards in October, from Total and Wintershall Norge AS. Total placed an order for the supply of subsea systems for its Edradour and Glenlivet fields offshore in the West of Shetland area. The scope of supply consists of subsea equipment including manifolds and associated connections and controls equipment, wellhead systems, subsea tie back connection equipment, and a subsea production tree.

"We are pleased to be supplying the subsea systems for the developments," said Tore Halvorsen, Senior Vice President of Subsea Technologies. "By working closely with Total, we are able to provide a cost-effective solution for developing these important fields."

FMC Technologies also signed a long-term frame agreement with Wintershall Norge AS, to supply subsea production systems for its developments offshore Norway. The first call-off under the frame agreement, covering subsea equipment for Wintershall's Maria field, has been awarded. This initial call-off has an estimated value of $280 million in revenue.

The frame agreement expands FMC Technologies' already established relationship, providing surface and shallow water equipment to Wintershall, to include support for its subsea developments.

"This frame agreement enables us to implement standardized solutions that will form the basis for Wintershall's future subsea developments," added Halvorsen.

New customer agreements

Two further agreements were announced in October – a 10-year global agreement with BG Group and a global master services agreement with ConocoPhillips.

Long-term agreements are important to our business as they provide the platform to align with customers, collaborate on projects and drive standardization. Crucially, frame agreements provide assurances for future orders.

The earlier announcement with Anadarko, BP, ConocoPhillips and Shell to develop high pressure/high temperature equipment for the Gulf of Mexico is another example of developing long-term customer relationships.

Subsea Services' new headquarters in Ågotnes, Norway

The new Dunfermline, Scotland, facility creates one central location for employees

New facilities unveiled

Dunfermline, Scotland; Ågotnes, Norway; and Singapore

As FMC Technologies grows its global capabilities, it is adding to its facilities worldwide.

After 12 months of construction, a new three-story, 36,000 square feet (3,345 square meters) office block extension in Dunfermline, Scotland, opened on September 2.

Prior to the opening, Andrew Cort, HSE and Quality Director and Michelle Kinnes, Well Completion Systems Manager, hosted an open day for all staff to view the new facilities. The building will provide modern office space to accommodate business growth and to bring teams at satellite local offices, such as the Surface Technologies team, into one central location.

Each of the three floors has breakout areas for staff to meet, collaborate and relax away from their desks. High-quality insulation, energy efficient air conditioning and LED lighting will all make significant savings in energy bills.

The new extension was planned back in 2011, with work starting in early September 2013. Tom Bell, UK Facilities Manager, said, "We approached the project using FMC Technologies' IQ methodology to ensure requirements were understood, agreed and well communicated. As a result, we have achieved a fantastic new office block which was delivered on time and on budget."

In Ågotnes, Norway, Subsea Services' move to a new headquarters building has also been a success, with all staff moving on August 29. The new building has open-plan offices to encourage more open communication, said Atle Dåvøy, Facility Manager at Customer Support, Eastern Region.

And in Singapore, more than 420 employees moved into the newly-refurbished sixth floor of a facility known as the Creative Building in Jurong East. Some 500 Subsea Technologies employees now share the building.

"This move provides us with the unique opportunity to create a collaborative, flexible and modern work environment, which matches the dynamic and teamwork-based requirements of our project-focused business," said Doug Moody, General Manager, Subsea Systems, Asia Pacific and Middle East Region

"The co-location of personnel and departments involved with customers and projects, from initial enquiry all the way through life-of-field services, supports all of our core values, but specifically assists us in living the values of collaboration, customer-centered, innovation, quality and valuing people."

Middle East visit

Dammam, Kingdom of Saudi Arabia and Abu Dhabi, United Arab Emirates

John Gremp, Chairman, President and CEO, visited the Middle East from November 1 to 6 to meet with his counterparts and senior executives from the state-owned oil companies Saudi Aramco in the Kingdom of Saudi Arabia (KSA) and the Abu Dhabi National Oil Company (ADNOC) in the United Arab Emirates (UAE).

The visit reflects the growth of FMC Technologies' operations in the region in general, and specifically in the KSA and UAE. Both locations have more than 200 drilling rigs and are also shifting their focus from producing oil to drilling and producing gas, to meet increasing demand from their domestic markets.

"Drilling for gas requires higher levels and more complex technologies, such as large bore and high-pressure clad equipment, which is something we are strong in," said Graham Horn, General Manager for Surface Wellhead International, who accompanied Gremp on the visit.

Gremp also visited FMC Technologies' service facilities in Dammam, KSA and in Abu Dhabi.

John Gremp, Chairman, President and CEO, fourth left, with the Middle East Surface Wellhead management team

"I was excited to see our growth in the region since I worked there as General Manager for the Asia Pacific and Middle East region in the early 1990s," he said. "The Middle East is an important market for us and we are enthusiastic about supporting our customers there.

"The trip offered me a chance to see some old colleagues and to meet some of the very motivated and committed people we have in both locations."

Quarter results

FMC TECHNOLOGIES REPORTS THIRD QUARTER 2014 RESULTS

Houston, TX, United States

SUBSEA TECHNOLOGIES
REVENUE: **$1.3BN ⓘ16%***
OPERATING PROFIT: **$204M ⓘ69%***
INBOUND ORDERS: **$1.1BN**
BACKLOG: **$5.9BN**

FMC TECHNOLOGIES (OVERALL)
REVENUE:
$2BN ⓘ15%*
DILUTED EARNINGS PER SHARE:
$0.72
INBOUND ORDERS:
$1.7BN
BACKLOG:
$6.8BN

ENERGY INFRASTRUCTURE
REVENUE: **$125M ⓓ18%*†**
OPERATING PROFIT: **$5M ⓓ72%*†**
INBOUND ORDERS: **$134M**
BACKLOG: **$242M**

SURFACE TECHNOLOGIES
REVENUE: **$556M ⓘ22%***
OPERATING PROFIT: **$110M ⓘ47%***
INBOUND ORDERS: **$544M**
BACKLOG: **$751M**

†Due to the sale of the Material Handling Products business in April 2014, quarter over quarter comparisons include its results in the third quarter 2013, but are excluded in the third quarter 2014.

IN QUOTES

JOHN GREMP, CHAIRMAN, PRESIDENT AND CEO

"Quarterly subsea margins are at the highest level we have delivered in over four years. Our focus on execution, the strength of our backlog, and the growth of our subsea service revenue has positioned us to continue delivering mid-teen level margins. In Surface Technologies, we delivered record earnings on the growth of our North American Fluid Control business, as well as continued strong performance in our International Surface Wellhead business."

"We are focused on developing new, long-term relationships with customers and expanding those we already have. We've recently added three new frame partners. In addition to Wintershall Norge AS and a 10-year agreement with BG Group, we signed a global master services agreement with ConocoPhillips and are close to finalizing a global agreement to be their preferred supplier of subsea equipment and related services. As a long-term customer, this demonstrates their confidence in us."

*from the prior year-quarter

John Gremp on a visit to Oklahoma City Surface Wellhead Operations

IQ sweeps the globe

Since its introduction in 2008, Impact Quality has helped transform the way FMC Technologies operates. In September and October 2014, our employees across the globe took the opportunity to celebrate the steps we have taken on our quality journey and to look forward to the next stage where self management becomes central

From Angola in Africa to Oklahoma City in the U.S., from Perth in Australia to Sens in France, celebrations took place across FMC Technologies with our second annual Impact Quality (IQ) Celebration of Commitment.

As in 2013's inaugural event, participating sites were able to mark the occasion in ways that echoed their own needs and local culture. Similarly, employees had the opportunity to take part and reflect on their own journey toward creating a culture of quality and continuous improvement.

This year, the overarching theme was *Improving Execution*. A wide range of activities demonstrated how IQ and a Zero Defect mindset are both helping to achieve that goal, and how that success translates into company performance.

Signifying IQ's importance, members of the executive team played an active role during the 2014 Celebration of Commitment. John Gremp, Chairman, President and CEO, attended a number of events. He said, "Impact Quality is fundamental to our company strategy. It makes sense for all of us to take some time to reflect on where we are in the process, on our own journey and change of behavior. It's also an opportunity to think about what's ahead.

"The change in this company is real and it's deep into the organization. It's clear to me that IQ is not about slogans, posters or CEO speeches – it's much more than that. We've made a lot of progress, but we are not done."

Continuing journey

The 2014 Celebration also helped highlight the latest phase of the journey – Self Managed Impact Quality (SMIQ). This stage has seen leaders across the company step into training and mentoring roles that were previously filled by external consultants. Accountability for continuing progress, while developing and involving employees, has shifted from the corporate organization to line managers.

IQ is permanent and defines the environment in which FMC Technologies operates. The continuing journey requires the active engagement, empowerment and personal commitment of every employee to prevent defects, strengthen processes and keep finding ways to improve execution.

Ultimately, the aim is to lead the industry into a new era of reliability through superior product integrity, operational excellence and execution. New standards of performance will expand the company's competitive advantage, maintain its market leadership and create greater career opportunities for employees.

Gremp added, "The next stage in IQ is probably going to be our toughest. The early stages were about learning. We're beyond that. Now, it's our own and we have to learn how to show up for work every day and apply what we've learned. Confronted with non-conformance, we have to make that process Zero Defect capable. We have to live the Five Absolutes of Quality.

"It's a big step, but I believe that through reflection our people are encouraged, inspired and confident to make the cultural change that's so important to the company."

Impact Quality

Global commitment, global celebration

Further evidence of how firmly Impact Quality is influencing FMC Technologies' cultural transformation was on show throughout the company during September and October. Following the success of the initial events in 2013, more than 120 sites across the world took part in our IQ Celebration of Commitment this year. Here are just some of the amazing stories and pictures from a number of the events that were hosted across the company

Angola

José Costa (left) and Tore Halvorsen sign their commitment to IQ in Luanda

Lots of fun, food and Quality Award presentations by both FMC Technologies and Total were part of the celebrations in Angola. Other high points included speeches delivered personally by Tore Halvorsen, Senior Vice President of Subsea Technologies, José Costa, Country Manager, and by Gabriel Lerouge, In Country SPS Deputy Manager of Total, an important customer in the region. The event on September 26 gave our employees the chance to review recent quality improvement efforts.

APME

In Singapore, employees, led by Yu Ting Toh (center), had fun collaborating on a manufacturing record book (MRB) project

Celebrations in Asia Pacific and Middle East (APME) took place in Perth (Australia), Shekou (China), Hyderabad (India), Labuan and Nusajaya (both Malaysia) and Singapore. Activities were equally diverse, from interactive quality improvement booths to a game involving 20 teams who each had to build a 'tree' using items purchased from a 'marketplace.' Across the region, more than 2,500 enthusiastic employees joined the events, which were held between September 24 and 30.

Brazil

Aline de Souza Antônio (top), finds her picture on a giant IQ banner and the scenes of celebration in Macaé (below)

"Congratulations on a great event! I've left it really energized, happy and proud to be part of FMC Technologies." The words of Tatyana Lima, Training and Development Manager, HR, were shared by many after Brazil's celebrations.

Events took place in Macaé, Rio de Janeiro and Vila Velha between October 15 and 17. A host of activities included the launch of a music video created and performed by employees, a photo animation featuring almost 1,000 employees and a special lunch.

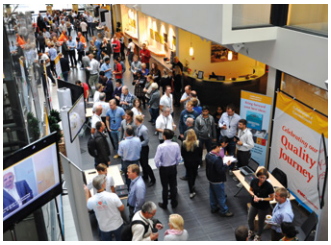
France

John Gremp (right) hears about execution improvement projects in Sens

At Sens on September 24, employees had a great opportunity to share an example of a best practice, an improvement or an IQ project, and to talk with members of the corporate and regional management team.

John Gremp, Chairman, President and CEO, made the opening speech before celebrations focused around key tools supporting the Sens IQ Journey, including Self Managed Impact Quality (SMIQ), Value Stream Mapping and the Business Process Management System (BPMS).

Norway



Engaging IQ events were held in Ågotnes (top) and Kongsberg (below)

Celebrations in Norway between September 23 and 25 proved extremely popular with events taking place at Ågotnes, Asker, Florø, Kongsberg and Kristiansund. There was an impressive turnout of employees at each site. At Ågotnes, Asker and Kongsberg they were joined by, among others, Jay Nutt, Vice President and Controller. Everyone was able to get great insight into local execution improvement projects while some locations had the chance to take part in a special IQ quiz.

Scotland

In Dunfermline, Iain Robertson explained local IQ improvements to Mark Scott (right)

The principles of IQ were front and center when employees celebrated in Dunfermline on September 10 and in Glasgow on September 11. Mark Scott, Vice President of Administration, was at both to see some excellent quality improvement work.

Dunfermline-based Kerry Cameron, Material Requirements Planning Controller, underlined the importance of IQ. She said, "I've been involved in two IQ projects and it really changes your way of thinking about what you do every single day."

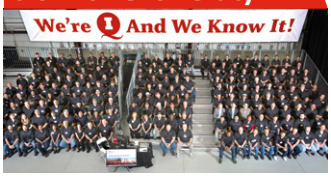
U.S. – Houston

Employees pledged their commitment to quality by signing one of five banners on display in the Western Region offices

This year saw multiple events take place in Houston. A major celebration was held on September 18 at the Gears Road Energy Café where more than 750 employees, were joined by John Gremp, Chairman, President and CEO, and Western Region Subsea General Manager Barry Glickman.

Activities included interactive games, IQ project displays, hourly prize draws and lunch provided by three Houston-area food trucks. There was also the launch of the *IQ Happy* video, a parody of Pharrell's hit song *Happy*, performed by employees from Angola, Houston and Nigeria.

U.S. – Oklahoma City



The entire Oklahoma City team (top) and (below) demonstrating the principles of IQ through the training game 'ZD Pig'

A host of IQ-based games, a brand new video, and the Oklahoma City Quality Awards – there was a lot happening at the event on September 15.

Employees from Surface Wellhead, Fluid Control Services and Completion Services all took part. Games that took place after a group lunch helped encourage cooperation, communication and IQ knowledge. This year's video from the Surface Technologies team, *It's IQ and I Know It*, has proved extremely popular on the FMC Technologies intranet and YouTube.

Lights, camera, action

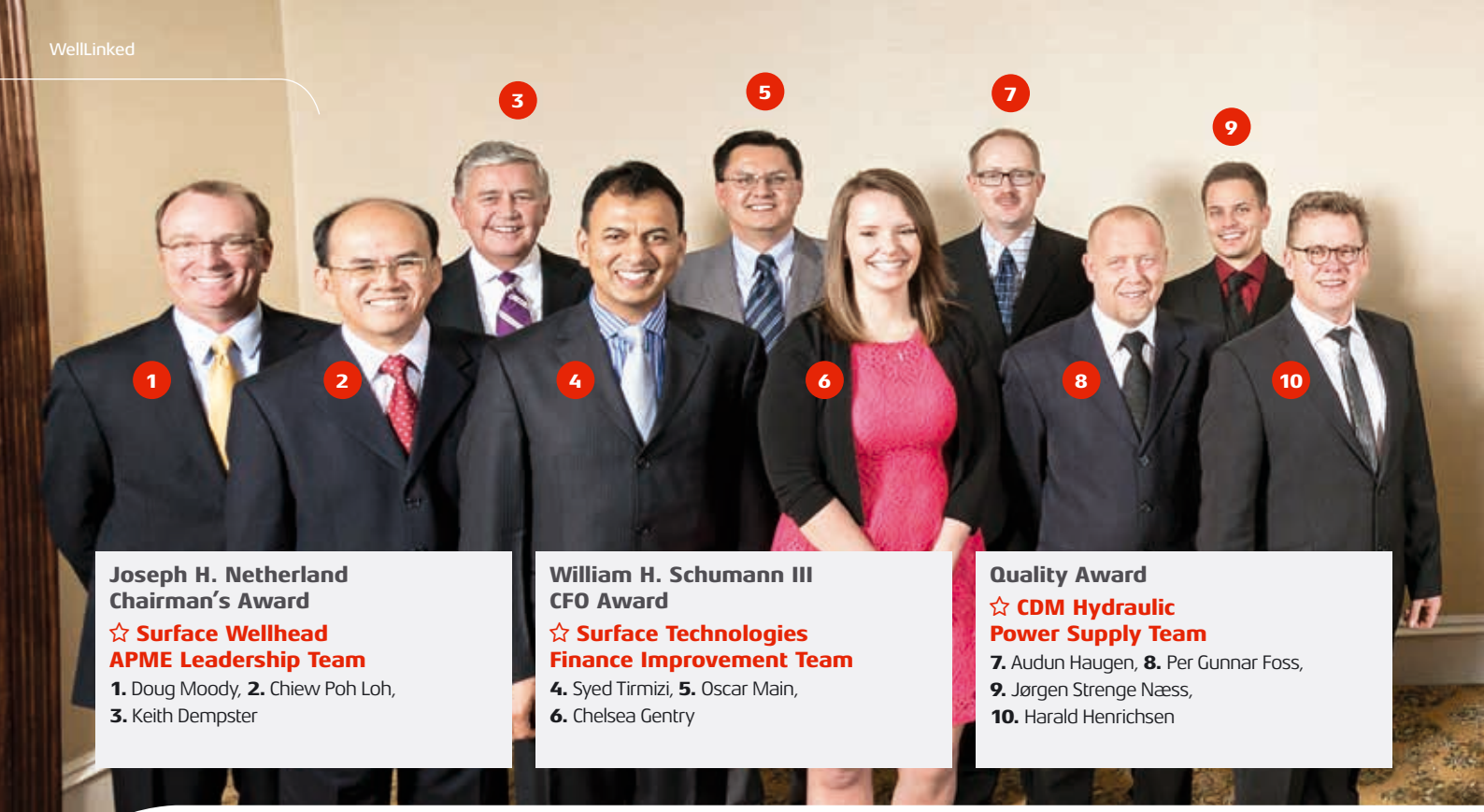
A number of videos are helping to communicate the *Improving Execution* message from this year's IQ celebrations:

- *2014 IQ Celebration of Commitment* features employees from around the world talking about how they are using IQ to improve execution. It's also available with Portuguese subtitles.
- In Brazil, not one but two videos were launched! *We Impact Quality* features 1,000 employees and *Impacting Quality* was composed and sung especially for the 2014 celebrations.
- The Western Region Subsea team produced *IQ Happy*, a fun interpretation of the global Pharrell hit, with great lyrics and equally great dance moves!

It's a hit! Brazilian employees come together to sing a specially composed song for this year's celebrations

- After last year's hugely successful *Working IQ Style* video which has over 10,000 hits on YouTube, the Oklahoma City team delivered *It's IQ and I Know It*, a brilliant parody of the LMFAO hit *Sexy and I Know It*. The fun video included a number of cameos. Johan Pfeiffer, Vice President of Surface Technologies and Tore Halvorsen, Senior Vice President of Subsea Technologies can both be spotted! All is revealed when you watch the video.

You can view all of the videos on the Impact Quality page. http://inside.net.fmcti.com/quality/pages/videohome.aspx



Joseph H. Netherland Chairman's Award
☆ Surface Wellhead APME Leadership Team
1. Doug Moody, **2.** Chiew Poh Loh, **3.** Keith Dempster

William H. Schumann III CFO Award
☆ Surface Technologies Finance Improvement Team
4. Syed Tirmizi, **5.** Oscar Main, **6.** Chelsea Gentry

Quality Award
☆ CDM Hydraulic Power Supply Team
7. Audun Haugen, **8.** Per Gunnar Foss, **9.** Jørgen Strenge Næss, **10.** Harald Henrichsen

Rewarding excellence

Valuing people is one of FMC Technologies' core values and, as part of this commitment, the company recognized various examples of outstanding contribution at the annual Corporate Awards ceremony in Houston, Texas, in November

FMC Technologies' technical and market leading position is a reflection of its investment in its people, and some of the company's exceptional employee accomplishments were acknowledged at the annual FMC Technologies Corporate Awards on November 14, held in Houston's Houstonian Hotel.

The Corporate Awards program comprises eight specific categories, and honors employees from various disciplines within our company.

As is the format every year, a comprehensive selection and judging process helped identify the 2014 winners. After being nominated by their peers, the candidates' efforts were evaluated by a group of leaders from the appropriate discipline and an executive sponsor.

The glittering event provided the perfect setting for a memorable celebration and members of the executive team were present to honor the prizewinners.

John Gremp, Chairman, President and CEO, said, "Every one of these awards is richly deserved and is a reflection of the outstanding work which has contributed to making FMC Technologies an extraordinary company, staffed with extraordinary people. Congratulations to all the winners."

For more information on the Corporate Awards, visit http://inside.net.fmcti.com/communications/Pages/Home.aspx

2014
FMC Technologies Corporate Awards

Roll of honor

Joseph H. Netherland Chairman's Award
☆ Surface Wellhead APME Leadership Team
Congratulations to Keith Dempster, Chiew Poh Loh, Howard Short, Ganesan Alagappan, Vi Vian Lau, Glenn Taylor, Loh Kah Hong, and Doug Moody who led the region to extraordinary execution performance amidst a significant ramp-up in activity.

William H. Schumann III CFO Award
☆ Surface Technologies Finance Improvement Team
Congratulations to Syed Tirmizi, Oscar Main, Leul Georgis, Chelsea Gentry, Vi Vian Lau, and Ali Sanat, who developed and implemented an oversight program to ensure that a systematic review of the balance sheet and key controls at our remote surface locations is undertaken annually.

Raymond C. Tower Safety Award
☆ Washington Couto, HSE Manager, Subsea Systems, Brazil
Washington Couto's extraordinary personal commitment to the development, implementation and sustainability of our HSE programs has helped create a safer overall work environment and lower incident rates in the Rio de Janiero and Macaé sites.

Eagle Award
☆ **Brazil Subsea Supply Chain Team**
11. Rodrigo Zanetti, **12.** Irineu Rocha, **13.** Marcelo Alves, **14.** Igor Barinov

Peter D. Kinnear Technology Award
☆ **ISOL-8 Pump Development Team**
15. Mark Ballance, **16.** Willie Klassen, **17.** Thomas Fulenwider, **18.** Dan Mattsson-Boze

D. Guerry Parker Infinity Award
☆ **Global Exhibitions Program Team**
19. Sandy Enoch, **20.** Jørn Moen, **21.** Audun Oksavik, **22.** Tina Kruse

Raymond C. Tower Safety Award
☆ **23. Washington Couto, HSE Manager, Brazil**

Eagle Award
☆ **Brazil Subsea Supply Chain Team**

Congratulations to André Magalhães, Andreia Ramon, Igor Barinov, Irineu Rocha, Marcelo Alves, Nathalia Muniz, Priscila Camargo, Rafael Ramos, Roberto Coto, Rodrigo Zanetti, and Valeria Moore who, through significant collaboration with the category managers and product lines, developed a strategic sourcing plan for pre-salt trees and manifolds to support flawless execution of the $1.5 billion pre-salt order from Petrobras.

D. Guerry Parker Infinity Award
☆ **Global Exhibitions Program Team**

This team developed a vision and strategy to communicate our brand as a technology leader by building visual and messaging consistency across the more than 75 tradeshows and exhibitions FMC Technologies participates in every year. Congratulations to the Global Exhibitions Program Team on their stunning achievements: Tina Kruse, Sandy Enoch, Jørn Moen, Audun Oksavik, Mads Riis Henriksen, and Lars Ole Bjørnsrud.

Quality Award
☆ **CDM Hydraulic Power Supply Team**

Congratulations to Harald Henrichsen, Mats Andersen, Per Gunnar Foss, Audun Haugen, Jørgen Strenge Næss, Øystein Høgmoen, Gunnar Storhaug, Vegar Henriksen, Ashbjørn Oskasin, and Espen Olaussen. The team used a combination of IQ and lean methodologies to completely redesign the hydraulic power supply at the Kongsberg facility, ensuring this supply is no longer a limiting factor in supplying products to our customers and creating customer success.

Robert L. Potter Award – *formerly known as the Tony Award*
☆ **ENI Asset, ENI Jangkrik Capture and ENI 15-06 East Hub Capture Teams**
24. Fareza, **25.** Wayne Sandhu, **26.** Merina Tham, **27.** Bertrand Chupin, **28.** Justin Vaughan, **29.** Sofia Barrios Leon, **30.** Leo Pui Fung, **31.** Yee Ling Siow

Peter D. Kinnear Technology Award
☆ **ISOL-8 Pump Development Team**

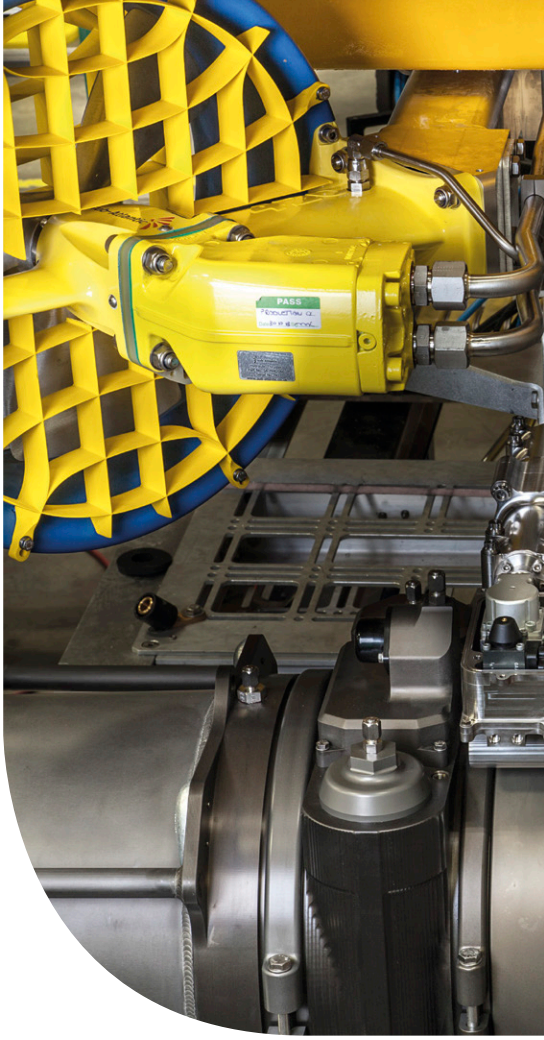
Following the implementation of new API standards for the secondary emergency intervention on blowout preventers (BOPs) via remotely operated vehicles (ROVs), this team set forth on an extensive research and development effort to create new technology that would meet and exceed these new standards. Congratulations to Willie Klassen, Greg Collier, Keven Schell, Chris Ade, Mark Ballance, Thomas Fulenwider, Dan Mattsson-Boze, and David Furmidge.

Robert L. Potter Award
☆ **ENI Asset, ENI Jangkrik Capture and ENI 15-06 East Hub Capture Teams**

These teams are being recognized for their extraordinary efforts in developing and securing a strategic customer partnership with ENI through a global frame agreement. The award also recognizes the capture of the ENI Jangkrik project offshore Indonesia and ENI 15-06 East Hub project offshore Angola. Congratulations to Fabio Decataldo, Bertrand Chupin, Wayne Sandhu, Ian Allard, Hege Ofstad Njå, Leo Pui Fung, Merina Tham, Yee Ling Siow, Fareza, Sofia Barrios Leon, and Justin Vaughan.

Always ahead

From a strong field of contenders, the ISOL-8 Pump from Schilling Robotics is the worthy winner of this year's Peter D. Kinnear Technology Award, one of the eight categories included in the annual FMC Technologies Corporate Awards



A belief that the best has yet to be invented is central to FMC Technologies' vision of being the undisputed leader in our markets. With innovation as one of our seven core values, the Peter D. Kinnear Technology Award recognizes individuals and teams who have expanded the company's capabilities by setting new technical and performance standards.

From 12 nominations for the prestigious award, three entries were selected to make a final presentation to the Executive Judging Committee, led by Brad Beitler, Vice President of Technology.

From those three, the Committee selected the Schilling Robotics ISOL-8 Pump, which is integrated into the new UHD-III Remotely Operated Vehicle (ROV), as the winner.

The other two finalists (*see panel right*) were the Subsea Choke development nominated by the Subsea Choke Product Line and the Generation 1 E3 Actuator Development nominated by the Eastern Region Technology Center and eSolutions team.

WINNER

ISOL-8 Pump, Schilling Robotics

Since the Deepwater Horizon blowout in 2010, the offshore oil and gas industry has developed specific standards for the secondary emergency intervention on blowout preventers (BOPs) via ROVs. The API 53 standard requires fluid pumping capacity that is well beyond the capabilities of any existing ROV in the world.

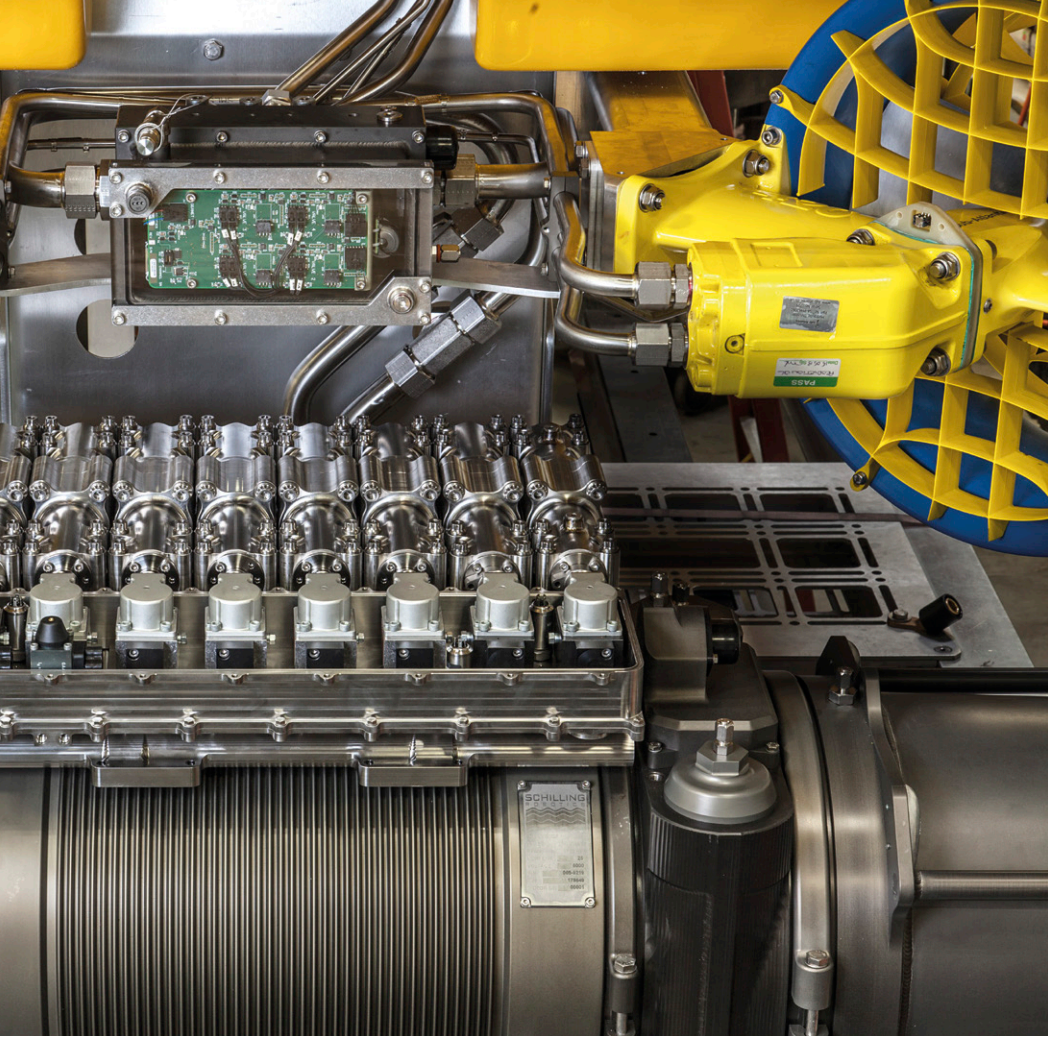
Schilling Robotics analyzed the problem by thoroughly understanding the requirements set out in API 53, and researched the actual fluid intervention requirements of all existing BOPs. The research results identified the spectrum of operating pressures and flows required to fully comply with API 53 on all BOPs.

Traditional pumping systems utilizing swash plate designs were quickly ruled out as a potential solution due to the fundamental practical limitations of achieving simultaneous high pressure and high flow in a package that could be integrated within the limited space of an ROV. Instead, an innovative solution was developed based upon reciprocating pump technology. In addition, Schilling Robotics was able to draw upon its expertise in material selection, control system design, and advanced machining capabilities to develop a compact, eight-station reciprocating pump system that can deliver 5,000 psi at 50 gallons per minute (189.5 liters/min) utilizing virtually any intervention fluid, and even seawater if necessary.

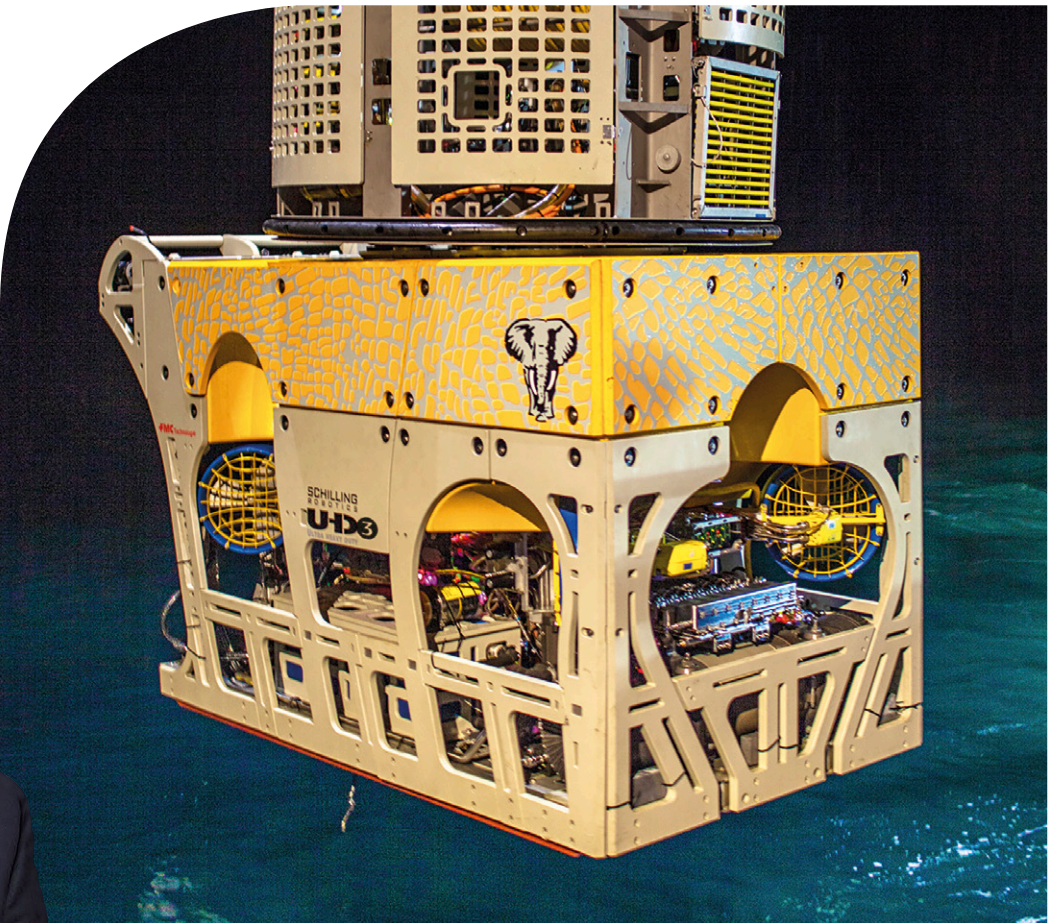
The ISOL-8 Pump is designed as an integral part of the UHD-III ROV, both of which were launched at OTC Houston 2014 where the pump was awarded the prestigious *Spotlight on New Technology Award*. This integrated system has been tested in a pool environment, as witnessed by both BP and Chevron, and has additionally completed offshore sea-trials. Within the first few months of launching this technology, the company has taken orders for 10 UHD-III systems featuring the ISOL-8 Pump.

"We entirely rethought the ISOL-8 Pump element of the ROV and came up with a new system that can handle all kinds of fluid and allows total control over the pressure," said Tyler Schilling, President of Schilling Robotics. "Having won the *Spotlight on New Technology Award* at this year's OTC in Houston, the Peter D. Kinnear Technology Award is further recognition of our entire team's obsessive dedication to detail in developing the technology, and we're very proud of this recognition."

> "We entirely rethought the ISOL-8 Pump element of the ROV and came up with a new system that can handle all kinds of fluid and allows total control over the pressure."
>
> **Tyler Schilling, President, Schilling Robotics**



The award-winning Schilling Robotics' ISOL-8 Pump (above) is a key feature of the latest ROV built by the company, the state-of-the-art UHD-III (below)



FINALIST

Subsea Choke, Subsea Choke Team

Eight years ago, 40 percent of all subsea tree system failures were related to original equipment manufacturer (OEM) chokes. To eliminate this weak link, FMC Technologies designed its own line of subsea chokes, which has redefined industry standards.

The new design improved upon and repackaged best-in-class features that eliminate the risks of choke failure due to erosion, debris impact, vibration and malfunctioning actuators.

As a result of this work, the FMC Technologies portfolio of chokes is now one of the most reliable in the market. To date, 320 chokes have been sold globally, with 180 deliveries. A confirmed installed base has accumulated more than 1.5 million hours in the field with zero failures.

FINALIST

Electric Actuators, Eastern Region Technology Center and eSolutions Team

Statoil's Åsgard Gas Compression project is a demanding application requiring an actuator system capable of both accurate positioning of valves and high-speed closed loop control. The customer had strict requirements that went above and beyond current industry standards and challenged the Eastern Region Technology Center (ERTC) in Kongsberg, Norway, to develop an eActuator solution that would lower operating expenditure.

The ERTC and eSolutions team collaborated to develop and qualify two types of electric actuators. The team has delivered 82 units for Åsgard to date and foresees a market for 50 to 80 units per year.

It is the first fully redundant electric actuator that can be installed and retrieved with an ROV and without the need for any wireline or buoyancy. The standard building block design for a variety of valves allows for fast assembly and lower cost, and it is also the first electric actuator that has two separate seawater barriers.

DESTINATION ZERO

Hands-off approach

The move to eliminate all direct touching from processes involving suspended loads or any associated lifting equipment is one of four HSE emphasis areas and a major milestone on FMC Technologies' collective journey to Destination Zero. While challenging, it has spurred examples of innovation and collaboration. WellLinked *looks at two areas of the business applying the new No-Touch policy*

Case study

Safer together

In the manufacturing and assembly environments of Well Completion Systems in Dunfermline, Scotland, no touch represents both a critical safety measure and a major practical challenge. Rather than taking a rigid, prescriptive approach, Jane Macdonald, HSE Advisor for Systems and Development, understood consultation and collaboration would be key to success.

"Hand and finger injuries have really been the first phase of our broader efforts to deal with no touch," she said. "We engaged with the union from the outset, as well as our workforce, both in terms of identifying risks and formulating workable solutions."

The HSE team's first step was a review of existing Personal Protective Equipment (PPE), and a move to replace the model of gloves that had been in use for several years.

"Gloves are clearly the last line of defense, but they provided a good focal point for the wider cultural change we are trying to achieve. Even as we were talking to workers, they began thinking more about what they were doing with their hands. We followed that up with a campaign emphasizing the consequences of a hand or finger injury."

The consultation process, PPE overhaul and subsequent campaign proved a huge success, with an almost two-thirds reduction in the number of hand/finger injuries (*from May 2013 to April 2014 versus May 2012 to April 2013*).

"It's very rare here to see someone without the correct PPE, and when it does happen, co-workers will always intervene quickly. People here aren't afraid to be the one to step in and stop an unsafe behavior."

The bigger picture

Yet the hand and finger campaign was just one piece of the wider drive to implement the No-Touch policy. Overcoming initial skepticism on the shop floor that it would be possible to eliminate all touching from suspended load handling, Macdonald and her team are making good progress on a methodical and comprehensive review of all their lifting operations.

A new Mechanical Lifting team, established in January 2013 and working across the Dunfermline site, is actively supporting this effort. As well as assisting with the wider cultural change, the team is helping supervisors find no-touch solutions for lifts flagged as not currently being no-touch compliant, and has developed an audit program for the continued improvement of lifting activities.

Above: Destination Zero poster promoting proper glove usage

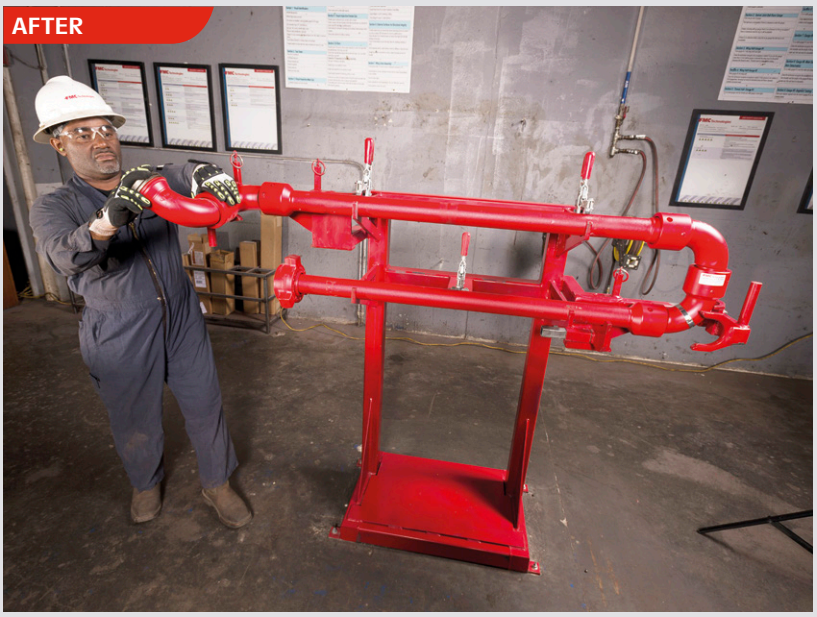
"Everyone has been involved in working through the many practical obstacles to making all our lifts no-touch compliant," said Macdonald. "We've introduced several new tools, such as taglines, push/pull sticks and snares. We've also had great input from external no-touch tool experts, who joined us for two Impact Quality (IQ) days in September, in Dunfermline and Bellshill, to share their experiences and some of the tools they've developed. The Mechanical Lifting team was involved in both days, as well as a further event, around HSE teams in Action, on November 6."

The HSE group has also been working with the design teams in Dunfermline and Bellshill, to look at how no touch can be incorporated early in the design process itself, minimizing situations in which suspended loads must be manipulated during assembly.

"By working collaboratively, we're making great progress in creating a real sense of shared ownership. This, in turn, will strengthen the positive safety culture that we have in Dunfermline. More than gloves or new tools, it is that culture that will keep our people safe."

For more information on Destination Zero and the No-Touch policy, visit the dedicated microsite http://inside.net.fmcti.com/destinationzero/pages/default.aspx

The Mechanical Lifting team hosted a number of events designed to showcase and encourage feedback



Top, the old method of testing a C&C hose was potentially hazardous. The new approach using a stand (above) is safer and more productive, as demonstrated by Paul Green, Master Service Technician

HSE emphasis video
A scene (right) from the Hand and Finger Incidents video that is available to view at **http://inside.net.fmcti.com/DestinationZero/Pages/Videos.aspx**

Case study

A fluid approach

With many technicians manipulating equipment with their hands on a daily basis, it was clear that the Fluid Control Services business stood to benefit from the No-Touch policy. What the team did not predict though, was the extent to which the resulting new tools and processes would not only improve technicians' safety, but also boost productivity and enhance execution.

After a thorough analysis of all previous hand and finger injury records, set against data on the most commonly serviced flowline equipment, four product areas stood out as being particularly problematic: straight joints, swivel joints, circulating and cementing (C&C) hoses, and plug valves.

Noel Bowman, Quality Process Leader, said, "We started discussing the No-Touch policy in May 2014, with a representative team from across the Fluid Control Services business. We then developed and prototyped tool designs, and created Zero Defect capable processes that would accompany them."

Collaboration with the shop floor was crucial at every step in finding no-touch solutions to problematic processes, as Field Service Engineer James Cook explained. "If we involve the people who deal with this equipment on a daily basis, we end up with something that's not only more effective, but which the technicians feel some ownership of," he said.

The no-touch difference

The first new tools to enter field trials are a C&C hose assembly workstation and a C&C hose test stand. Using these, a C&C hose can be disassembled, inspected, and reassembled without any need for time-consuming and potentially hazardous re-clamping. The stands also allow technicians to connect and test up to five hoses in sequence, estimated to reduce the time needed for testing by at least 10 percent through pre-rigging the structure prior to arrival at the pressure test cell.

"Safety need not come at the cost of productivity," said Bowman. "In fact, if you make a system too complicated, it can actually become less safe. We're creating tools that take manual complexity out of our processes, making technicians' jobs easier and safer."

Safety culture and training are just as important as having the right tools and processes in place, and both Bowman and Cook stress the role of IQ in ensuring safety innovations are followed through into practice. The valuable lessons learned in Fluid Control Services are being applied in other areas of the business.

"This team has done an absolutely fantastic job. I've challenged them and I'm very proud of how they've responded. That's a testament to the kind of people that work in our business," concluded Bowman.

Ideas into action

Having the right company strategy in place is essential, but is only the first step in a long journey. WellLinked *spoke to Sanjay Bhatia, Vice President of Corporate Development, about the challenges of ensuring FMC Technologies' strategic vision is executed at every level and that actions are focused to realize our strategy*

Sanjay Bhatia has a unique perspective on the short and long-term challenges facing the company. Tasked with ensuring that action plans drive toward achieving the top-level strategy, he said solid progress has been made, but the momentum needs to be faster given the competitive and market environment. He urges caution against complacency and believes the shift toward shale solutions, processing infrastructure, and subsea services will require an even greater commitment to think strategically about every decision.

Strategic landscape

"In subsea, the immediate focus will be increasing the operators' confidence in achieving a better return on capital," said Bhatia. "That means looking for ways to improve their project costs and to get field production online faster. This requires getting smarter about project designs and field layout. It also means looking at how they can maximize the production rate. We need to really understand customers' fields so that we can use our capabilities to design the right hardware and service solutions.

"Then, in the longer term, it's really about how to further improve the performance, recovery and production rates – the life-of-field value – across all of their developments."

The competitive environment in subsea has seen some significant changes over the past 18 months, with competitors striking strategic partnerships and moving into new areas, including subsea processing and subsea services – two of the company's three strategic growth platforms. While FMC Technologies remains ahead of the curve, Bhatia said the strategic focus must remain on delivering customer success to maintain our market and technical leadership.

"Going forward, we need to be a lot more focused on implementing our strategy in a faster and more targeted manner. There are some capabilities that we need to work on. For example, how do we sell services and develop new ones, and how do we ensure we're fully leveraging FTO Services?"

The challenges facing the surface market are different, but just as urgent in a competitive market. As the third strategic growth platform, Bhatia takes a keen interest in the shale market, which remains mostly centered on North America (*see Spotlight on Shale, starting page 19*). He said the key to success here is to industrialize the development and production of the shale fields.

"Shale is such a fast-paced environment. Operators have been optimizing the drilling and hydraulic fracturing operations but have not addressed the complexity that results on the production pad. It's clear there is still a real opportunity to introduce more industrialization and project management capabilities on-site."

Customers face several practical obstacles to achieving this goal – mostly centered around

prioritizing their resources – and Bhatia sees a strategic opportunity for FMC Technologies to help maximize productivity and grow its business.

Strategic direction

Bhatia is confident that the company has become much more effective at putting its strategic intentions into action over the past couple of years, but acknowledges it is an ongoing process.

"We continue to formalize the strategic planning process, with more businesses and product lines participating more fully to a common time frame," he said. "The result is a far greater connection between the shared strategy, all the various inputs from the businesses and the likes of IT and Human Resources, and what we expect from the financial standpoint. Previously, those were all quite independent, so that's been a big achievement."

Bhatia intends to continue to make the strategic process even more consistent, by encouraging all businesses to participate and engage at the same level – an area in which he has already made good progress.

"This year, we've seen much greater involvement from the subsea product lines. We're starting to involve [Vice President of Technology] Brad Beitler's organization more, and making sure their strategies around technology are linked to other areas of the business. So we've certainly improved the frameworks that exist for communicating and engaging with various parts of the business.

"We've also learned a lot from the journey we've been on. For example, the strategic plan is more robust if we have everybody working together toward the same goals – so, when product lines are working on a product innovation, that innovation needs to tie specifically into the market plans that the businesses have."

He describes this increasing sophistication in terms of a tree diagram, where the core company strategy branches into business strategies and initiatives, and then individual actions.

"Beyond that, we're also trying to create strategic initiatives that have greater horizontal breadth. So for example, something might start in subsea, and then lead to specific initiatives elsewhere in the business."

Bhatia is also seeking to make strategic initiatives more measurable in the future. This means setting clear, specific goals and providing regular opportunities to revisit progress. As well as providing the opportunity to revise strategies to make them more effective, the audit process is delivering valuable lessons that can be applied in other areas.

Strategic change

Although significant progress has been made in cementing the link between strategy and practice on the ground, Bhatia said this strategic overview is now more important than ever, as FMC Technologies undergoes some of the most profound changes in its history.

"We need to understand and manage the challenges involved with change, particularly as we move to new business models," he cautioned. "So when we're shifting into providing services, we're talking about offering customers something they may never have considered before, and forming relationships with areas of the business we've never previously dealt with.

"I think one key thing we've learned from Impact Quality [IQ] and overcoming our execution issues is the importance of change management. Before, it was just about getting product lines working well with project groups, whereas now we're talking about whole new business models. If we're to succeed, all of our strategic planning must accommodate very significant change management."

FMC Technologies has made tremendous progress in aligning each of its businesses to the shared company strategy. As we move into new markets and tackle new customer challenges, our ability to operate as one team stands to be our greatest competitive advantage.

Above left: Helping put strategy at the center of our day-to-day operations are Sanjay Bhatia, Vice President of Corporate Development (foreground) and his team. Clockwise from left to right: Lior Keren, Corporate Development Analyst; Camille Roberts, Marketing Coordinator; Paul Vidal, Venky Gopalan, Edoka Edosio and Akif Ahmad, all Corporate Development Analysts; and Hernan Anzola, Corporate Development Manager

Focusing on our three growth platforms. From top, expanding our subsea services capability in Ågotnes, Norway, maximizing production in subsea processing and the fast-moving shale environment

"Going forward, we need to be a lot more focused on implementing our strategy in a faster and more targeted manner."

Sanjay Bhatia, Vice President, Corporate Development

During the Scope of Work course created for Fluid Control technician new hires, students are exposed to a blended experience of classroom and hands-on training

Best in class

Since its launch in 2012, FMC Technologies University has played a key role in transforming our company into a learning organization by giving every employee the opportunity to advance their skills. From the start of 2015, the University's scope will increase, with plans in place to support its development into a world-class center of learning

Consistent development and training of our workforce is essential to the company's success and its ability to accomplish its growth strategy. Globalization of product lines, services and other parts of the business requires robust training and development of our people no matter where they may be based. Equal opportunities to grow skills and proficiencies must also be provided.

That's the thinking behind the decision to extend the reach and responsibilities of FMC Technologies University, known as the University, with all training resources in the company now being combined under its remit.

According to Chris Bartlett, Director of Learning Infrastructure and Knowledge Management, the benefits include being able to maintain and improve the company's training resources, and leverage expertise across the business.

"There has typically been a great deal of duplication of activities in the various business units and regions when it came to training and development," said Bartlett. "Combining and centralizing our training resources into the University eliminates this duplication and reduces costs. It also works to increase our learning capacity. Ultimately we will be better structured to share best practices across regions and business units, thereby increasing the quality of what we offer.

"Staff will also receive more relevant training to their specific needs, which will decrease the price of non-conformance [PONC]."

As part of the restructuring, the 'Organizational Development' element of Organizational Development and Training, known as OD&T, is being renamed Talent Management, and the 'Training' element has transitioned into the University.

Incorporating IQ

Bartlett said the University would also strive to incorporate learnings from the Impact Quality process into curriculum development, by defining requirements before developing materials. With better input, the University can leverage best practices and improve its course offerings.

"This enables us to create a learning solution rather than just a course," he said. "For example, many employees have told me that the Management Essentials classes are some of the best they have ever taken. Those well-structured classes have now been globalized and are accessible to every employee."

The University is also working to define competencies as well as proficiency levels for every role within the company. Additionally, it will provide workforce analytics to enable better decision-making for both managers and employees.

"With this in place, an individual employee can do a self-assessment not only of the role they are currently in, but also of a role they aspire to move into," said Bartlett. "Imagine an employee who can take control of their own learning and development, and, subsequently, their career path. That's what we envision."

Take control

To create your own path through FMC Technologies, you can:

- Download the University catalog which provides a starting point for employees to learn about the schools and available courses. The catalog is available on the home page of The FMCTU Network on The EDGE at **http://inside.km.net.fmcti.com/FMCU**
- Talk to your manager about career aspirations and goals in one-on-one sessions. Discuss and agree on your training needs. Then sign up for those classes via the University Learning Management System.
- Follow the University Network on The EDGE – announcements will be posted as new tools for competency assessment and career development come online.

FMC Technologies University mission

1. **Accelerate the time to competency** – increasing the effectiveness of our employees and enabling our workforce.
2. **Equip and inspire personnel for professional growth** – enabling career fulfillment for our employees.
3. **Provide the best faculty and state-of-the-art learning resources** – generating superior, industry-shaping ideas, knowledge and competency.
4. **Support business success** – creating a learning culture that matches and anticipates the businesses needs to make customers successful and builds shareholder value.
5. **Consistently evaluate against up-to-date internal and external standards** – ensuring learning success.

Spotlight on Shale

Just a decade ago, the idea of the U.S. becoming energy independent would have seemed far-fetched to even the most optimistic commentator. But then came the shale oil and gas revolution that rewrote all the old rules, and which is now reaching other parts of the world.

But the meteoric rise of unconventional hydrocarbons has not been without its challenges. Unable to export the excess natural shale gas produced in the early years, domestic prices plummeted after 2005 and the blossoming shale industry almost ended before it had properly begun. Concerns over sourcing and treating the large quantities of water required for hydraulic fracturing have also given rise to ever more demanding regulations. And the requirement for technology and expertise to keep pace with the industry's rapid growth has threatened to become a bottleneck.

FMC Technologies is working closely with its customers to meet and overcome each of these challenges. As well as constantly refining its field-proven technologies for an environment where safety, reliability and speed are everything, the Surface Technologies business has created a new integrated vision that is set to turn the industry on its head.

Surface Technologies' frac trees, flow lines and Time and Efficiency (TE) Manifold assist a customer in reaching production faster

Johan Pfeiffer, Vice President of Surface Technologies, has a clear vision for the future

Serious shale players

Great products are a given and exceptional service support is a must, but in the fragmented and competitive world of shale plays, suppliers must also have a vision to succeed in the long term. Johan Pfeiffer, Vice President of Surface Technologies, talked to WellLinked *about FMC Technologies' progress in creating a business based on excellence, simplicity, safety and customer success*

Given the headlines being attached to the North American shale 'revolution', it is easy to forget that hydraulic fracturing in combination with horizontal drilling, only really emerged as a commercially viable source of recovering surface hydrocarbons about 10 years ago. Even in those earliest days, FMC Technologies was working closely with customers to develop cutting-edge products specifically for the promising shale gas market.

Those early years of shale gas were so successful that the U.S. domestic gas market was quickly flooded, driving down prices to the point where the growth of shale was seriously inhibited. This changed in 2008, when it was discovered that roughly the same techniques could also be used to extract shale oil.

"The oil market works very differently to gas," explained Pfeiffer. "The U.S. wasn't set up to export gas, so the early shale industry was entirely dependent on domestic demand. Oil is much more readily traded, so prices are set on a global scale, making the business much more predictable. So, we saw a lot of those early shale gas players make the switch, and today around 90 percent of all activity is around producing oil."

A complex evolution

The sophistication of North America's shale industry has increased significantly and at some speed over the past five years.

"Wells are being drilled faster and closer together, while fracturing at more locations in the well is allowing the operator to recover more hydrocarbons," continued Pfeiffer. "Measured using the industry standard net present value [NPV] per acre, the economics of shale wells have improved by close to 300 percent over the past five years."

As a result, the complexity and sophistication

of each project has also increased, not only in terms of the technology and expertise required – though this is definitely a significant factor – but also in terms of the number of parties typically involved.

"The market is very fragmented, and one of the main challenges our customers face is having to deal with up to 200 vendors for any given pad, covering drilling, fracturing, completions and the final production equipment."

It is not only the supplier side that is fragmented. Having grown very rapidly across the wide geographic area represented by the U.S. shale plays, the industry encompasses everything from the super-majors and large independents to the smaller regional producers.

"The result is a large number of customers, each with quite distinct backgrounds, experience and needs. Generally though, there is an overall lack of local resources among producers," added Pfeiffer. "The huge acceleration of activity in remote locations has come up against manpower shortages in key shale plays such as North Dakota, West Texas and South Texas."

This complexity and fragmentation presents a challenge, but also offers tremendous opportunities for any supplier able to offer a comprehensive and integrated suite of products and services, as well as the technical expertise to meet customers' more complex needs. In short, said Pfeiffer, it puts FMC Technologies at the head of the competitive pack.

The Surface Technologies team on location. Left to right are Gilbert Raya, Technical Service Personnel (TSP); James Edwards, TSP; Johan Pfeiffer, Vice President, Surface Technologies; Xavier Tison, Regional Manager, East Continent; Eric Wilke, Rotational Service Specialist; and Jon Gosney, Frac Flowback Supervisor

A clear need

Pfeiffer has a multi-step approach to developing the business, and helping shale customers tackle these challenges. It is underpinned by a commitment to ensuring the company's products, systems and services are as good as they can possibly be.

"In every segment in which we operate – from drilling and completions to production – we are constantly strengthening each component so they are the best on the market. This includes the kind of equipment our shale customers would expect us to provide, but also new technologies to address their most pressing challenges," he said.

Much of this new technology leverages field-proven systems from the subsea business. In water treatment, for example, Ed Candia, Director of Flow Treatment, and his team have used FMC Technologies' subsea separation expertise to tackle separation and water treatment challenges in a surface environment (*see pages 30 and 31*).

Pfeiffer's next step is to integrate the services FMC Technologies already provides, ensuring the company's own internal organization better reflects the integrated vision. For example, a new Surface Integrated Services group, led by Richard Alabaster has been formed (*see pages 24 and 25*), while frac and flowback systems and services have also been brought together.

"The creation of the Surface Integrated Services group was a big step for us," said Pfeiffer. "Moves like co-locating our sales force may seem trivial, but are actually very effective in terms of changing the way people think. We're also co-locating across our facilities in North America, including the construction of three new 'super centers' in Brighton, Colorado, and Odessa and San Antonio, Texas. These centers, which will house all of the individual business units under one roof, are our blueprint for the future of the business."

Finally, each area of the shale business will be aligned to present a truly integrated offering; a partnership between FMC Technologies and the customer that covers everything from drilling to production facilities, measurement systems and water treatment. Pfeiffer acknowledged this will be a large shift in the way the industry does business, and that it will only come about through a gradual move over the coming years.

"Typically, today, we deal with three distinct groups within each customer; one handling drilling of the well, one handling completions – responsible for hydraulic fracturing and flowback – and the last one responsible for facilities, which puts together the equipment and ensures the final infrastructure is on-site. In addition, the central purchasing organization can also be involved. We're currently working to cement FMC Technologies' credentials

> "We are constantly strengthening each component so they are the best on the market."
>
> **Johan Pfeiffer, Vice President, Surface Technologies**

Clockwise from top: Eric Wilke greases a frac valve during scheduled down time; Jon Gosney bleeds off trapped pressure before he safely removes and inspects the adjustable choke stem and seat; and Johan Pfeiffer on location with a member of the Technical Service Personnel team

as the best in class provider before we go in with the wider systems integration vision," he said.

The business has already made significant progress toward its strategic goals, with new technology performing well in field trials, and some early take-up of integrated services by larger customers such as Chevron and Noble Energy. It is also gradually increasing the scope of products it supplies on each pad; grouping these together in systems to decrease complexity for the customer.

"Some of the products we supply are more or less commoditized. But by moving into supplying systems rather than individual components, we're able to offer economies of scale and reduced complexity. We will also increase our market share for those more commoditized parts by standardizing and increasing focus on efficient sourcing," said Pfeiffer.

A dynamic environment

While this exciting new industry is maturing quickly, there remains a strong sense that we are still in the opening chapters of the shale story.

In the U.S., gas is now making a comeback, as domestic demand increases due to the continuing shift from coal-fired to the less polluting gas-fired power plants. Gas could even have a role in the country eventually becoming a net exporter of hydrocarbons, as the Government begins to issue long-sought export licenses for liquefied natural gas.

Beyond North America, there are several other highly promising shale opportunities around the world, perhaps most notably in Latin America. Argentina is currently the most active area outside North America, while Algeria, Australia, Saudi Arabia and even parts of Europe show great promise.

"The one fundamental thing you need to remember about shale is that the economics always depend on having good geology – it's not just about a willingness to invest in the infrastructure. So, when you see somewhere like Saudi Arabia – which has attractive shale plays, existing infrastructure and the necessary financial muscle – there's inevitably a lot of excitement around that."

But what would the emergence of significant new international shale producers mean for the North American market and for FMC Technologies?

"To put it into perspective, the U.S. currently imports around 3.5 million barrels of oil per year – a gap it hopes to fill with domestic shale oil by 2020. The global increase in oil demand between now and then is estimated between 10 and 15 million barrels. So there is still a very big hole to fill and we, as a company, have a great opportunity to assist in that in both surface and subsea across the world.

"Recently, supply growth has exceeded demand growth and oil prices have been under pressure. Eventually this will return to a more balanced situation and prices should be attractive for continued growth."

As the shale industry grows in size, complexity and maturity, Pfeiffer has the necessary vision to ensure FMC Technologies' shale offering continues to evolve with it.

"By aligning the many threads of the business and living by our core values, we will work together as a truly integrated partner to our surface customers, offering greater simplicity, efficiency, safety and value," said Pfeiffer.

Integrate to innovate

As our customers look to preserve and improve the returns on their oil and gas developments, Surface Technologies has responded by bringing two of its businesses under a single organization. Richard Alabaster, its General Manager, discusses the creation of Surface Integrated Services and what he hopes to achieve in an exceptionally diverse and competitive market

Formed in December 2013 from the existing Surface Wellhead Americas and Completion Services businesses, Surface Integrated Services (SIS) has a bold but simple aim: to become the surface market's leading integrated service and product provider – from drilling to completion – by allowing customers to produce more hydrocarbons, faster and at a reduced cost.

The formation of SIS has come at the right time for the industry. In North America, where shale dominates the surface market, declining oil and flat gas prices, combined with rising like-for-like costs mean operators' margins are being squeezed.

Right solutions at the right time

Richard Alabaster, General Manager of SIS, explained that the primary means for operators to protect their margins is by making their processes faster and more efficient.

"In the shale plays, customer operations follow a manufacturing model more than the traditional project-type model," said Alabaster. "That means they're looking to drive efficiencies through techniques such as Just-in-Time, Lean and so on."

FMC Technologies' track record in helping operators improve their efficiency has been exemplary. Until recently, the operators' focus has been on improving the drilling phase of their operations, an area in which the company's wellhead systems and on-site service standards have helped cut times by around 60 percent.

"However, most of the low-hanging fruit in that area has been realized, so the focus is now shifting to the completion phase, primarily hydraulic fracturing and flowback, as well as permanent production facilities," said Alabaster. "Our goal is to get customers to greater production more quickly and at less cost."

SIS will achieve this in a number of ways. It is reducing the number of interfaces and transactions between operators and their suppliers, by providing a more comprehensive platform of products and services – part of the "systems approach" that has become such a major part of FMC Technologies' surface strategy. It is also reducing the number of personnel traveling to and from sites – further minimizing costs and improving safety – as well as tackling downtime through improved service quality and reduced wear and tear on equipment.

Water remains a huge preoccupation for operators, and FMC Technologies is better placed than ever to help mitigate the various associated costs.

Shale wells both consume and produce vast quantities of water, so a great deal of our focus is around reducing net water use, as well as more efficient treatment and disposal of waste water. The company is about to deploy its first commercial units to more effectively treat and reuse flowback and produced water (*read more on pages 30 and 31*).

Alabaster continued, "One of our most interesting developments under way is technology to better monitor exactly what is going on down the hole in real time during production. This is important because some fractures perform significantly better than others in terms of the hydrocarbon to water ratio. If we understand what's happening with individual fractures, we can reduce the production of water, thus increasing hydrocarbon production and reducing the volume and cost of water to be treated and disposed of."

> "Our goal is to get customers to greater production more quickly and at less cost."
>
> **Richard Alabaster, General Manager, Surface Integrated Services**

An upward trend

Alabaster is upbeat about the market, particularly in North America, where the large shale plays that account for the major share of SIS's activity are recovering from a two-year downturn.

"As well as being very active in the U.S. and Canada, we also have a strong presence in the emerging Latin American shale markets, notably Argentina, Colombia, and, at some time in the future, potentially Mexico."

Having the right physical presence is particularly important on the service side of the business. Alabaster is keen to point out that – just as it is extending its footprint in the major U.S. shale plays – FMC Technologies has an established and growing network of bases in Latin America.

"Argentina in particular is developing along very similar lines to North America. We've recently opened a manufacturing facility there and also added a service base in the Vaca Muerta shale play in the west of the country," he said.

Meeting customer needs

Across the board though, Alabaster said the North American surface market is one of FMC Technologies' most diverse and complex, both in terms of the needs and expectations of customers, and the sheer range of competitors.

"Our rival service providers range from the other large equipment manufacturers to highly specialized players, to national outfits, right down to the very small 'mom and pop' operators, particularly in services such as flowback and

Richard Alabaster, General Manager of Surface Integrated Sevices (SIS)

wireline. So it's a very diverse and competitively intense market."

In the short term, Alabaster has clear priorities for SIS to stand out and win in such a market. Improving the competitiveness of the "component" products and services, notably wellhead equipment and frac stack, and frac manifold rental will be a vital first step.

Second, the business will need to win and flawlessly execute a number of integrated services contracts – something it is starting to do right now. Likewise, SIS is also about to begin commercial deployment of its flow treatment services – a landmark that will demonstrate the business's ability to execute in that area too. Finally, Alabaster anticipates completing field-testing of the new down-hole monitoring technology soon; another important piece of the integrated services package.

In parallel, the SIS organization will continue integrating its operations to ensure both the capture and high-quality delivery of integrated services, and to successfully execute the "component" strategies. A great deal of work has already gone into bringing the businesses together at a practical as well as strategic level during its one year existence. For example, field facilities are increasingly being co-located, while areas such as sales and field operations are already collaborating well.

Alabaster concluded, "There's a lot of work still to be done, but our vision is very simple: to become the leading integrated service and product provider, from drilling through to completion, that enables our customers to produce more hydrocarbons, faster and at reduced cost. When we achieve that, we will have made both our business and our customers successful."

On demand

In the lightning-fast world of multi-stage hydraulic fracturing, FMC Technologies' frac rental business combines speed with proven reliability and innovation. WellLinked *looks at the winning formula that will grow this business faster than the market*

The shale industry moves at a phenomenal pace and FMC Technologies' frac rental business is right on the cutting edge; giving customers both the agility and reliability to make the most of every opportunity.

Mark Earl, U.S. Fracturing Business Manager explained, "The cost of downtime from equipment failures far exceeds the cost of reliable rental equipment. With FMC Technologies' hydraulic fracturing systems and services, our customers' uptime is maximized through robust design that results in reliable pressure containment and ease of use."

The business value proposition is simple but compelling: safe, operational equipment, with proven field maintenance practices and standardized repair processes, brought together to minimize costly downtime. It also offers a broader selection of equipment and services than its competitors, with the ability to bundle, resulting in reduced overall risk and increased productivity.

"The daily costs during the completion phase are very high, so one of our customers' main challenges is minimizing non-productive time [NPT]," continued Earl. "Our customers are also being challenged to deliver producing wells on a compressed schedule. Reducing NPT helps our customers to be successful in both areas; reduced costs and faster well delivery."

Having invested heavily during the early days of North America's "unconventional revolution," Earl said FMC Technologies has been able to stay ahead by consistently putting resources into meeting customers' evolving needs – most recently through additional investment in 15,000 psi equipment, which is increasingly in demand.

In the ascendancy

There are high hopes that recent market growth will continue and accelerate into 2015, and Tim Eaton, General Manager, Surface Wellhead U.S., believes our frac rental business is well placed to stay ahead of this trend.

"We'll be looking to further increase our market share in 2015 and beyond," said Eaton. "To accomplish that, we're going to strengthen our sales coverage but crucially also improve our operational efficiencies. Investment in new technology will play a key role in ensuring our business is able to make the most of its assets, so that customers always have access to the equipment they need, whenever and wherever they need it."

Notably, July 2014 saw the delivery of a new rental asset management system.

"The new system gives us greatly improved visibility of asset location and status, allowing us to move those assets from locations where they are underutilized to where they can be used to better serve our customers," explained Earl.

This year, the business has also implemented a Radio Frequency Identification (RFID) pilot in its Corpus Christi facility in Texas. This demonstrated the huge potential for using the electronic tagging technology in conjunction with the new asset management system. The RFID project – due to roll-out in 2015 – ties into existing systems to track, schedule, and maintain frac assets via an easy-to-use dynamic website, accessible to all sales and service personnel involved with serving the customer.

Under the new system, created in partnership with specialist RFID company Mojix, equipment movements will be automatically scanned and logged in the system. This will reduce manual asset tracking and ensure accurate and timely information from the field.

The partnership with Mojix is also being extended to a separate project with Fluid Control, aligning Surface Technologies' RFID systems to a single vendor in the U.S.

The expertise to deliver

2015 will also see the opening of a new Houston training center – a collaboration between FMC Technologies and Lone Star College. "Field technicians trained in this state-of-the art facility will provide us with a distinct competitive advantage," commented Earl. "Customers want to work with partners who do things right first time, every time."

A related short-term priority has been to improve the business's repair processes, notably standardizing historical processes, improving training across all frac bases and auditing the results.

Eaton said, "Our goal is to improve the reliability of the products that are available for use in our service. This ties back to the new training center and ensuring the right skills are available. Even when a piece of equipment is properly designed, manufactured and maintained, you still need people who understand the processes and execute these correctly."

Just the beginning

The unconventional shale market is robust, and the frac rental team has taken the necessary actions this year to provide the focus and investment for continued success.

"It's a great market to be in and a great business," continued Eaton. "Having enjoyed sustained investment and built up our offering around speed, reliability and minimized NPT, we're in a great position to continue growing faster than the market. We need to live our core values, collaborate and think in terms of Impact Quality to better understand our customers' requirements. This is a very good place to be and, if we can do all those things, it's going to be a tremendously exciting few years ahead."

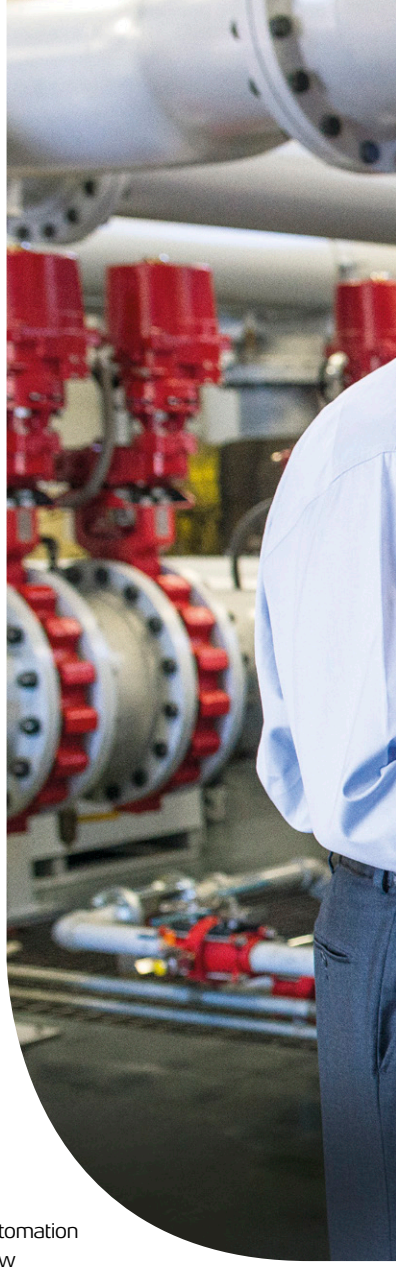
Tim Eaton, General Manager, Surface Wellhead U.S. (left) and Mark Earl, U.S. Fracturing Business Manager, are both aware of the frac rental market opportunity

Three steps to a winning formula

- For U.S. operators who want to perform multi-stage hydraulic fracturing, FMC Technologies' systems and services are the best-in-class, increasing productivity and reducing cost.
- With FMC Technologies' hydraulic fracturing systems and services, customer uptime is maximized due to a better, more robust design. Proven field maintenance practices and standardized redress and repair processes both positively impact total uptime and costs. And, with the ability to bundle systems and services, customers get improved pad site development with a focus on overall accountability. Overall risk is reduced, while productivity is increased.
- FMC Technologies' highly trained Technical Service Personnel (TSPs) have the expertise to respond quickly and safely execute the job. The company's clearly defined career path planning and carefully designed retention programs give FMC Technologies the manpower to create customer success in every hydraulic fracturing project.

Made to measure

FMC Technologies prides itself on not only offering the shale industry's most comprehensive range of measurement solutions, but also the expertise to give our customers confidence in a market where speed and uptime are make-or-break issues



Measurement sits at the commercial heart of any oil and gas business; not only in custody transfer applications, but also upstream and in more advanced production optimization. Yet, for many in the burgeoning shale oil industry, it remains something of a challenge.

Don Jackson, Measurement Solutions' Western Hemisphere Sales Manager, explained, "Our customers are drilling wells at a record pace and want to get to first oil as quickly as possible, and start producing a return on their investment. But, particularly as shale developments increase in complexity and intensity, many of our producers lack knowledge on how to properly apply measurement equipment and solutions. This impacts their own customer relationships and their profitability."

There are several reasons for this lack of expertise in the market. The most obvious is the proliferation of smaller independent players, who are able to move quickly but often lack deep in-house expertise. In many cases though, even among the mid-tier and larger players in the U.S., whose prior experience is mainly in natural gas, the market's move to more profitable shale oil is proving to be a steep learning curve.

Experience to count on

FMC Technologies' Measurement Solutions business is a global leader, having provided integrated measurement systems to the oil and gas industry for over 75 years. With the addition of its new Coriolis mass flow meters, the business offers the broadest range of liquid custody transfer solutions in the industry, supported by global engineering project management experience and after-market service and support.

From a strategic standpoint, Measurement Solutions has been hard at work putting in place four key building blocks for success.

First is process design. Through production process simulation, the team can now optimize the design of facilities and equipment, making it possible to adjust and modify equipment as production rates and pressures change. The business has also leveraged FMC Technologies' extensive subsea modular design experience to reduce an operator's facilities costs through standardization, modularization, parallel operations and superior project management. Overall, this will help lower the operator's lease operating costs and requirements for experienced personnel, and minimize the overall footprint.

Second, the acquisition of automation specialist CSI (now Automation and Control) in 2012 has enabled FMC Technologies to deliver comprehensive automation solutions for the upstream market, from process control to data collection, storage and analysis.

The third building block is operational support, in the form of nationwide and regional support facilities in each of the liquid shale plays, providing maintenance and preservation services, along with spares, inventory management and experienced field technicians.

"With an increase in the number of companies

> "The sheer breadth of our products, backed up by service excellence and expertise, is a major selling point."
>
> **Dale Sumpter, General Manager, Measurement Solutions**

Please note no PPE was required as all testing activities were suspended during the photo shoot

offering equipment only, customers are looking to suppliers that can provide turnkey solutions. On the measurement side, we have a comprehensive range of products. We also have employees experienced in implementing these solutions and servicing them after the sale to meet our customers' requirements," said Dale Sumpter, General Manager, Measurement Solutions.

Fourth – but definitely not least – is the flow monitoring technology itself. Here, FMC Technologies' strength rests on its ability to offer an appropriate technology for any application.

Sumpter continued, "The sheer breadth of our products, backed up by service excellence and expertise, is a major selling point. We are in a unique position in the market, in that we offer both the high-end technologies and the more conventional, traditional, mechanical solutions. So we're not just focused in one niche, which is a distinct differentiator because we're not trying to sell inappropriate products to meet our customers' needs. We're applying our full portfolio of products to an application to optimize the performance."

In particular, the business today is seeing greater demand for its products in upstream environments, and has adjusted accordingly.

Measurement Products Business Manager, Western Hemisphere, Ed Saffron said, "In the past, our product line has almost exclusively been used for custody transfer. Now though, we're moving into upstream measurement, where tolerance to a mix of hydrocarbons, water and sand is more important than pinpoint accuracy. So the rise of the shale plays has changed our business, in terms of how we run our local facilities. We're building more standardized, high volume meters to put on the shelf for sale."

Customers first

Measurement Solutions' goals are clear: to leverage its engineering, manufacturing and sales experience – along with its focus on continuous improvement – to help customers reach first oil faster. It has also further strengthened its customer relationships, as well as its ties with the other business units in Surface Technologies, to ensure its messaging and customer relationships are properly aligned.

"I think the surface organization is in a terrific position to capitalize on the opportunities that the North American shale plays offer us," said Jackson. "Our challenge will be to leverage our strengths and capabilities within Fluid Control, Surface Integrated Services and Measurement Solutions. We're committed to do our part and we'll be working hand-in-hand with the other businesses to make this a success."

Above: (from left to right) Measurement Solutions' Dale Sumpter, General Manager; Ed Saffron, Measurement Products Business Manager, Western Hemisphere and Don Jackson, Western Hemisphere Sales Manager, in the business unit's Flow Research and Testing Center (FRTC).

A suitable case for treatment

The management and treatment of water is crucial to the long-term, sustainable success of the shale oil and gas sector. FMC Technologies is applying its unique knowledge, experience and expertise to make that process more efficient and cost-effective

FMC Technologies is developing a portfolio of flow treatment products and services for the shale market that is proving superior in field trials to existing technology, in some cases outperforming conventional methods by more than 90 percent.

Ed Candia, Director of Flow Treatment, explained that a number of new technologies have been proven at sites across the U.S., including California, Oklahoma, Texas and Utah.

Results have shown that FMC Technologies' products perform well when compared to traditional systems. For example, an operator in Oklahoma wanted to compare several technologies designed to remove boron from produced water so that the treated water could be reused in hydraulic fracturing (fracking) operations.

FMC Technologies successfully conducted that pilot removing almost 99 percent of boron from the produced water, with approximately 95 percent overall fluid recovery as compared to 50 to 60 percent with other technologies.

Water is an integral element of hydraulic fracturing, which is employed to extract hydrocarbons from shale beds. Along with sand (proppant), it is used as a tool to fracture the rock formation and release oil and gas. 'Flowback' water, containing contaminants, is a by-product of the well completion process, and wells, over a lifetime, always generate a large amount of 'produced' water, along with oil and gas.

The volumes involved are enormous. On average, in the U.S., a well utilizes an estimated 100,000 barrels of water to complete the fracking process. In 2010, the total volume of produced water from wells across the country was approximately 20 billion barrels.

Candia added, "As a result, there is an enormous demand for technology that can separate and process water so that it can be reused by fracking companies or safely disposed of."

Going with the flow

He highlighted a number of complementary solutions that have been developed including the de-sander, which uses inline, cyclonic technology to separate the proppants from the flowback and produced water. In the Eagle Ford shale play in Texas, a de-sander installed by the company is removing almost 99 percent of sand from the flowback water. Conventional systems removed approximately 20 to 40 percent. Similarly, the de-waterer allows bulk oil removal from a water dominant flow, so operators can recover oil before reinjecting the water into a disposal well.

FMC Technologies' subsea experience,

A growth market

Shale is one of FMC Technologies' strategic growth platforms. Over the past few years the shale oil and gas industry has expanded enormously in the U.S.* So much so, that the country has achieved close to self-sufficiency in oil production. While initial opportunities lie in the U.S., it is expected that the industry will grow in Australia, China, South Africa and South America.

*In its *Annual Energy Outlook 2014*, the Energy Information Administration estimated that the U.S. has approximately 610 trillion cubic feet of technically recoverable shale natural gas resources and 59 billion barrels of technically recoverable tight oil resources. As a result, the U.S. is ranked second globally after Russia in shale oil resources.

Source: www.eia.gov/todayinenergy/detail.cfm?id=11611

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FMC Technologies' latest market-leading technologies for the flow treatment process, the InLine DeWaterer (this picture) and, right, the InLine DeSander

"Most importantly, the solutions we are creating can separate faster than conventional methods..."

Ed Candia, Director, Flow Treatment

where separation is an essential task, has been a prime factor in helping the company to develop new ideas being put into play on land. "We're leveraging our technology and know-how, and adapting it to this environment so that we can address customer concerns," said Candia. "Most importantly, the solutions we are creating can separate faster than conventional methods, are smaller, which means they have a reduced footprint, and they are portable – they can be moved from one location to another without problems."

As the trials continue and the systems prove their value, it is expected that there will be growing interest from customers keen to take advantage of the best products and technologies.

CASE STUDY

More efficient, safer and more cost-effective

As part of its flow treatment portfolio, FMC Technologies has produced a ground-breaking advancement – an InLine DeSander that is compact, mobile and can eliminate over 95 percent of the incoming sand from a flowback stream.

In comparison, current technology removes only 20 to 40 percent. This presents a threat to downstream equipment which can be eroded by any proppant (sand) which remains in the flow. That means increased costs, and safety and environmental hazards.

The FMC Technologies InLine DeSander reduces the need to regularly replace eroded equipment. It also allows operators to optimize production from an early stage, improve the efficiency of oil and water separation, and eliminate potential safety and environmental hazards.

A trial of the InLine DeSander took place in the Eagle Ford shale play in South Texas between August and October 2014. In one phase, working together with a traditional sand-trap, it helped remove 99 percent of sand from the flow. In another, a single InLine DeSander outperformed two conventional sand-traps. These impressive results suggest the operator involved – and many others – will look at how the InLine DeSander can be deployed in the future.

CASE STUDY

Proven technology put to new use

FMC Technologies has applied its proven subsea technology to develop the InLine DeWaterer, a unit that removes hydrocarbons from a water dominated flow.

Employing cyclonic technology, the system can separate over 90 percent of the hydrocarbon content of the flow. It has a footprint up to 15 times smaller than other systems, is easy to install and requires minimal maintenance.

Using the InLine DeWaterer provides multiple benefits to operators: they need to buy fewer tanks, pits and other equipment, and can realize savings on maintenance, energy and other costs. It allows facilities to accept greater volumes without increasing their footprint and it can be moved from field to field.

The system makes upstream separation more efficient, thereby reducing hydrocarbons in the waste mix transported from the field.

At a trial in the Woodford shale play, Oklahoma, between February and March 2014, the InLine DeWaterer's performance was equal to, or in most cases superior to, the conventional setup.

It is another example of how FMC Technologies understands complex water issues and can provide solutions to the problems they present.

"On average, it takes our customers about eight men and three to four hours to hook up all the loose iron in a traditional system. The AFAM takes four people about 15 to 20 minutes."

Eric Heuring, Product and Engineering Manager, Fluid Control

Efficient, **effective**

An ability to apply the industry's most robust technologies to specific customer challenges has long been a cornerstone of FMC Technologies' reputation. Now approaching its third generation, the Articulating Frac Arm Manifold trailer (AFAM) is the perfect example of this, delivering speed, safety and reduced costs in the competitive shale market

In a market driven by speed and agility, the most revolutionary ideas are often those that can take hours off an existing process, reduce the need for personnel on the ground, or improve safety. When a product can do all three in a single, reliable and highly mobile package, it is destined for success.

Alan Killingsworth, Global Director of Sales, Fluid Control, said, "We observed a major bottleneck in the process of getting a pad ready for hydraulic fracturing – namely the time and complexity involved in setting up the manifold. The pumping trucks would have to transport the manifold iron to the site, where multiple technicians would spend hours installing it. It also adds considerable weight to the trucks, which can cause problems with permits. Essentially, it seemed like a very inefficient process."

Increasing efficiency

The AFAM is FMC Technologies' robust solution to this problem. Rigging up using a conventional manifold trailer requires the operators to assemble flowline iron between it and the pump truck, whereas the AFAM comprises a manifold with multiple articulated arms, which can reach out with a single, simple connection to the pump unit.

"On average, it takes our customers about eight men and three to four hours to hook up all the loose iron in a traditional system. The AFAM takes four people about 15 to 20 minutes," said Eric Heuring, Product and Engineering Manager, Fluid Control.

"Operators are generally only paid for the stages that they pump in the well. So, for all the time that they're putting together a manifold rather than pumping, they're not getting paid. That's just the efficiency story. From a safety perspective, you have far less lifting and moving, and fewer people in the critical area assembling connections. The AFAM removes a huge amount of the risk."

The technology itself is robust and field-proven, based on swivel joint technology the company has been using for the past 20 years. The idea for mounting the necessary joints and piping on a trailer also came from FMC Technologies' broad industry experience.

"There were several of us who had experience in loading systems, where articulating marine loading arms are often used to connect out to tankers," continued Killingsworth. "The original concept was to have arms articulating off the back of a truck and connecting to a conventional manifold. After discussions with customers, we developed that design to have the arms come directly off the manifold trailer."

Always improving

Once the team worked through the design challenges presented by compacting the articulating arms and modified manifold to a footprint small enough to sit on the trailer, the first units began selling to customers in 2010. Since then, 70 AFAM trailer units have been sold and undergone a number of design refinements. It is now in its second generation, with a third on its way.

Heuring said, "The third generation AFAM will feature a great deal more automation and we're working on this in partnership with one of our major customers. Think of subsea systems being controlled from the platform."

The Fluid Control team has collaborated with other areas of FMC Technologies in the development of the third generation AFAM's automation capabilities, including Controls and Data Management (CDM) and Automation and Control.

"Our goal is to eliminate the need to have personnel in the areas around those potentially hazardous high pressure systems," said Heuring. "But we're also looking at adding pressure and temperature sensors and controls; once those are in place, we can build in software safeguards that will help operators prevent equipment being damaged through human error."

Beyond this, development time is being spent evolving and adapting the technology to meet other specific customer challenges, particularly as the shale industry expands into new geographies and environments.

"We're looking at ways to increase the number of arms for example. The current design features 10 arms, but some customers are interested in increasing that to 12 or 14. It's an engineering challenge to deliver that in a package that is reliable and still meets the requirements for permitted loads and overall envelope sizes," said Heuring.

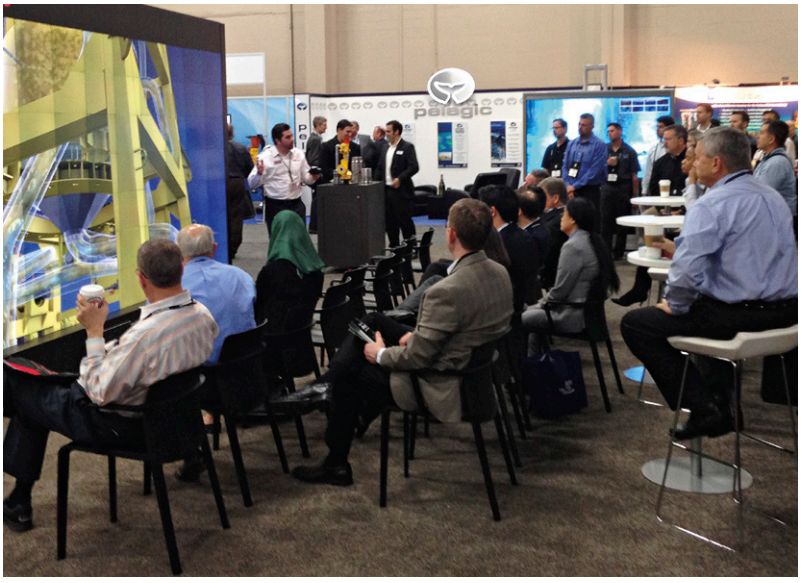
FMC Technologies' AFAM technology is featured in regular trade advertising campaigns

Unsurpassed

After four years, FMC Technologies' AFAM remains the only product of its type on the market, and it is still winning repeat orders from customers. The growth of shale globally is also opening up international markets, with the AFAM being deployed in Australia and Saudi Arabia.

"The AFAM is a great example of our ability as a company to take technology and apply it in a way that directly creates customer success," said Killingsworth. "Neither flowline nor the manifolds are revolutionary technology, yet the AFAM combines them together to help customers slash costly setup time, improve the safety of their personnel and reduce the overall cost of pumping services."

Event **calendar**



Visitors at the 2014 SSTB are captivated by FMC Technologies' 3D presentation

3-5 MARCH 2015

Subsea Tieback Forum and Exhibition

New Orleans, LA, United States

The theme for Subsea Tieback Forum and Exhibition 2015, known as SSTB, is *Subsea And All That Jazz*, a suitable title given the event's location in a city famous worldwide for its musical heritage.

SSTB is a closed forum with an emphasis on open discussion. The audience is specifically targeted and includes field supervisors and operations planning personnel, engineering staff as well as management.

Render of our new booth for 2015 SSTB

The 2014 event attracted a record attendance of nearly 3,000 visitors and in 2015 more than 200 exhibitors will showcase their products and services.

SSTB has a solid reputation for delivering a strong technical program, while giving exhibitors an opportunity to network with key industry leaders.

FMC Technologies is a Diamond Sponsor of the 2015 event and our booth will provide an interactive experience that reinforces the *Monitor.Maintain.Maximize.* messaging which demonstrates how the company provides all of the services required for optimum operations at every stage of a field's life.

Tina Kruse, Global Exhibitions and Events Manager, said, "This will be the first time we've showcased our new tier two design at Subsea Tieback. The booth will provide an open and engaging exhibit space so we can promote the various technologies that will be on display. It will also support a substantial theater presence, which is a key attraction."

The SSTB advisory board, which includes Systems Engineer Tom Kelly as FMC Technologies' representative solicits presentations from industry leaders. The key themes of the presentations will focus on experiences, applications, and current real world projects.

Planned sessions include talks on project learnings, subsea boosting and processing, asset integrity and brownfield project learnings, as well as presentations on flowlines, risers and umbilicals.

www.subseatiebackforum.com

27-29 JANUARY 2015

Marcellus-Utica Midstream

Pittsburgh, PA, United States

The Marcellus-Utica Midstream conference and exhibition will provide a venue where midstream industry leaders can hear about what's happening today and what's in store for the shale resource revolution under way throughout the Appalachian basin in the U.S. More than 1,500 attendees and around 200 exhibitors are due to attend, including FMC Technologies.

www.marcellusmidstream.com

11-13 FEBRUARY 2015

Subsea Expo

Aberdeen, Scotland

Subsea Expo gives attendees an opportunity to see innovative subsea technology in action. It has grown to become one of the world's leading events on the oil and gas calendar, with more than 190 exhibitors attending in 2014. FMC Technologies' will be among the exhibitors at the event.

www.subseaexpo.com

11-13 MARCH 2015

AOG

Perth, Australia

The annual Australasian Oil and Gas Exhibition & Conference (AOG) has become Australia's largest oil and gas event, with more than 500 exhibitors and over 15,000 visitors in attendance in 2014. FMC Technologies will be exhibiting at the event, which includes a graduate careers day and many networking opportunities.

www.aogexpo.com.au

16-19 MARCH 2015

NOG

Abuja, Nigeria

The Nigeria Oil & Gas Conference & Exhibition, known as NOG, is West Africa's leading oil and gas event, and the established meeting place for the entire Nigerian oil and gas value chain. The conference and exhibition is part of NOG Week 2015. The conference, where FMC Technologies is exhibiting, brings together a line-up of local and international speakers to discuss best practice and practical solutions in the West African oil and gas market, under the theme of *The Journey Towards Transformation*.

www.cwcnog.com

25-27 MARCH 2015

OMC Ravenna

Ravenna, Italy

The Offshore Mediterranean Conference and Exhibition (OMC) returns in March for the biennial event in northern Italy and FMC Technologies will be among the exhibitors.

www.omc.it

Show **review**

Audiences were keen to try out the 3D technology at FMC Technologies booth at Rio Oil & Gas Expo

15-18 SEPTEMBER 2014

Rio Oil & Gas Expo and Conference

Rio de Janeiro, Brazil

This year's Rio Oil & Gas Expo and Conference in Rio de Janeiro set a record for the number of people attending, with more than 47,000 people visiting the Riocentro over the course of the event.

Organized by the Brazilian Petroleum, Gas and Biofuels Institute (IBP), this 17th occurrence of Rio Oil & Gas hosted more than 1,000 exhibiting companies and 14 international pavilions.

The FMC Technologies booth included a full-scale printed image of a pre-salt subsea tree, standing 22.7 feet (6.93 meters) high, and interactive sessions using 3D technology, which attracted audiences keen to discover more about the company's in-country subsea systems and pre-salt field equipment and services. Visitors to the booth included Brazilian Vice President Michel Temer and Magda Chambriard, General Director of the National Agency of Petroleum (ANP).

FMC Technologies presented three technical papers on the subjects of fatigue mitigation, dynamic analysis assessment of subsea separation projects and subsea supersonic CO_2 rupture technology. Representatives from our Brazilian team also participated in discussions about important aspects of the industry such as research and development and pre-salt subsea demands of the future.

"Our presence at the event demonstrated that we are prepared for the challenges of the pre-salt and the subsea industry in Brazil, with a new generation of equipment, services and technological solutions to meet the demands for full capability using local content," said José Mauro, Sales and Marketing Director, Subsea Systems, Brazil.

Audiences at the booth were keen to discover more about the advances FMC Technologies has made

The annual Suppliers' Day helps the company build relationships with suppliers from around the world

23 SEPTEMBER 2014

Suppliers' Day

Rio de Janeiro, Brazil

FMC Technologies in Brazil hosted its fourth annual Suppliers' Day to build upon the company's partnerships with key suppliers.

Some 200 guests gathered for the event, which took place at the Pestana Hotel in Copacabana, Rio de Janeiro. These included Nelson Leite, President of Subsea Systems in Brazil; Anders Dahl, Global Sourcing and Procurement Director; members of the leadership team; regional directors and the entire FMC Technologies Brazilian Supply Chain organization.

In total, 44 vendors attended; 29 Brazilian and 15 international, and together they represented a wide range of categories, including raw materials, machining, fabrication, steel and pipes, original equipment manufacturer (OEM), instrumentation and distribution, special processes, logistics, and non-production materials/services.

The Suppliers' Day also included executive presentations as well as various awards for suppliers as recognition for their excellent performance over the past 12 months. The award criteria were based on FMC Technologies' safety, quality, delivery and cost (SQDC) indicators.

Marcelo Alves, Regional Supply Chain Manager, said, "The Suppliers' Day event helps us strengthen our partnerships and strategic alliances as it gives us the opportunity to share our outlook, challenges and expectations to help us deliver future customer success.

"With up to 70 percent of our products coming from the supply chain, our suppliers have a major role to play in our execution. We need to have a collaborative environment with our partners to ensure they can meet our business requirements and performance standards on SQDC," he concluded.

Stand and deliver

FMC Technologies' booth presenters are the voice of the company at major shows and exhibitions around the world, taking our strategic messages directly to those who matter – our customers and potential customers. WellLinked *caught up with some of the team to find out more about their roles and how they bring our vision to life*

By his own admission, Mike Robinson, Manager – Sales and Marketing Australia and New Zealand, Subsea Systems and Manager – Sales Asia Pacific and Middle East, Subsea Processing, became a trade show presenter for FMC Technologies by accident – but he has now been holding audiences' attention for 10 years at exhibitions around the world.

While Tina Kruse, Global Exhibitions and Events Manager, coordinates the theme and style for global shows, Robinson heads up an ever-growing team of presenters and works closely with Kruse on animation and content. This core team informs and entertains visitors to the company's booth at major oil and gas events around the world, including Tier 1 events such as Offshore Technology Conference (OTC) held annually in Houston, Texas; ONS, held every two years in Norway and Offshore Europe (OE), held every two years in Aberdeen, Scotland.

"I was at ONS in Norway in 2004, and while the regular presenters were taking a break I started playing with the game controller for the 3D model they were working with," said Robinson. "I discovered you could fly under the sea, over the sea, under the sea bed and even through things. I thought that was pretty cool.

"I was asked by a visitor to explain how something worked in the animation, so using free navigation and flying subsea I did this unprompted. After 15 minutes or so I turned around to find we had about 150 people on the stand listening. We had no idea, but at that moment we realized we had something very special, and decided to take it another step."

That step involved developing the scope and the content for the 3D animation to make it more dynamic and more comprehensive, and to explore its capabilities.

"We set it up to run at the next major event. I had spent weeks practicing and testing scenarios, but I didn't use a written script – instead I had a plan in my head to tell a story about subsea, with a beginning, a middle and an end," said Robinson. "I was terrified that there was no way anyone would sit for more than 15 minutes, but the first presentation lasted 20 minutes and people stayed, the next one took one hour and people stayed, and then it was an hour and 30 minutes. We realized the phenomenal power of making our market-leading technologies alive in 3D."

"...it's not about trying to sell – it's for teaching, entertaining, telling our story about how we've added value and solved some of our customers' greatest challenges."

Mike Robinson (above, left), Manager – Sales and Marketing Australia and New Zealand, Subsea Systems and Manager – Sales Asia Pacific and Middle East, Subsea Processing

Value Adding Services

From only having three scenarios capable of presentation in the 3D environment, there are now up to seven hours' worth of animation sequences in the system, with the focus on Value Adding Services. The latest Subsea Technologies life-of-field animation, for example, demonstrates the breadth of Subsea Services, Condition and Performance Monitoring, Flow Management, Field Development, Subsea Processing, Well Intervention and beyond.

"It's all about the 3D model, it blows everyone away," said Robinson. "But the key thing is it's not about trying to sell – it's for teaching, entertaining, telling our story about how we've added value and solved some of our customers' greatest challenges. That's the message our audience takes away."

In-depth knowledge

All of our current presenters *(see box out)* for our Tier 1 shows not only have the necessary in-depth knowledge, they also have the ability and confidence to present that knowledge in an entertaining and informative way.

"We realized we needed engineers with a personality – which isn't always easy to find!" said Robinson. "Now we have a formalized training program for potential presenters. There's an instruction manual for guidance, which includes fact and figures and sample 'stories' for the presenters to tell. And we now have an evaluation process to see if they have the necessary combination of presentation skills and technical knowledge.

"We encourage each presenter to put their own personality into their talks and we're keen on them making it their own and for them to make a connection with the audience. We then line up the presenters based on the scale of the show or event they're going to be working at."

After 10 years of presenting with the 3D animation, FMC Technologies is continually looking at ways to expand capabilities and demonstrate the company's technical innovation and leadership.

"We're always looking for the next big thing and we're always implementing improvements to keep FMC Technologies ahead," said Robinson. "And I know I speak on behalf of all of our presenters when I say we love it – it's demanding, exciting and humbling. To represent what the people at FMC Technologies have done to contribute to the industry and to provide customer success is something I'm very proud of."

From left: Three of our presenters Calum McClay, John Pierson and Mike Robinson at ONS 2014

Presenting the presenters

Our eight-strong team of Tier 1 event presenters has more than 20 years' show experience between them. *WellLinked* talked to each of them about representing the company. Read their interviews over the page.

Calum McClay at ONS 2014

Calum McClay

Sales Account Manager, UK Sales and Marketing team

My first major show was Offshore Europe in 2013, but I have been presenting at smaller events and training sessions for almost two years. Once you get going with presenting it becomes second nature and the time flies by. It's a little like playing a round of golf – you can finish feeling it was either fantastic or that it didn't flow as well as the last time. But I hope we are all up to a standard that it wouldn't show – we're clearly all perfectionists!

Kevin Simpson (far right) during OTC 2014

Kevin Simpson

Commercial Manager, Subsea Systems

I have presented at OTC for the past two years. Mostly, I present "Subsea 101," which demonstrates the basics of a subsea system, and life-of-field animations. There have been studies done on peoples' biggest fears and public speaking consistently ranks as the number one, ahead of death... but after giving countless presentations utilizing the 3D theater software, I can safely say I am now more afraid of death than I am of public speaking!

Charlie Weakly (far right) presents at OTC 2014

Charlie Weakly

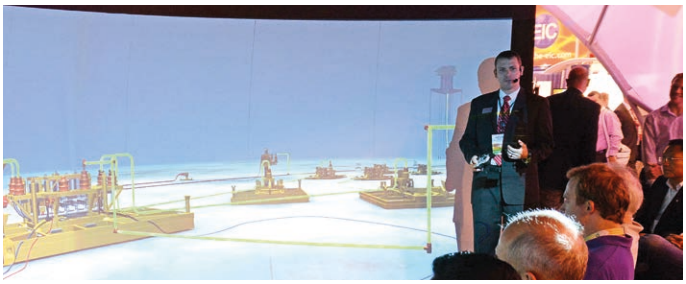
Field Development Manager, Major Tenders

I have presented at various shows for the past three years, specializing in Subsea Systems and Subsea Processing. It's a privilege for me to represent FMC Technologies on these important stages. I enjoy presenting to a diverse audience in a trade show environment with all of the energy and excitement that comes with being a part of our brand – it's an adrenaline rush and the atmosphere is always fantastic.

Turning the spotlight on our presenters

As we delved deeper into the characters of our eight Tier 1 event presenters, we decided to ask them six fun questions. You will enjoy their responses as much as the *WellLinked* editorial team did. Here are the questions:

1. What superhero power would you most want to possess: Flying; X-ray vision; Invisibility; Super strength; Elasticity; Mind reading?
2. Are you a morning person or a night owl?
3. Can you go a whole day without caffeine?
4. Do you prefer to eat something sweet or salty?
5. Do you play a musical instrument?
6. Would you rather exercise or be a couch potato?



Kevin Simpson

Current job title: Global Business Development Manager, Subsea Systems
Time in current role: One month
Time with FMC Technologies: Eight years

How do you feel about presenting?

I am nervous every time I step in front of a crowd, whether it is a dozen internal employees in our training center or 1,000 conference attendees at OTC. I try to use my anxiousness to anticipate questions and research facts and anecdotes that I feel the audience may enjoy.

What types of questions do you get?

Everything from: "What is a tree?" to "What is the R-Factor of the thermal insulation on the multiphase meter?" I try to be forthright with the audience in what I know and what I do not.

Please share a light-hearted anecdote...

There have been studies done on people's biggest fears and public speaking consistently ranks as the number one fear, topping out death... After giving countless presentations utilizing the 3D theater software over the past couple years, I can safely say that I am now more afraid of death than I am of public speaking.

Fun questions

1. Invisibility – it would make getting work done a breeze!
2. Morning, after a cup of coffee or four.
3. No, I cannot imagine the horror.
4. Sweet and salty. Combine these two and it's perfect!
5. Yes. Honestly, I can play a mean blues harmonica.
6. Exercise – I try to stay as active as possible with televised NFL as my largest couch potato vice.

Calum McClay

Current job title: Sales Account Manager based in Aberdeen
Time in current role: 22 months
Time with FMC Technologies: Four years

How do you feel about presenting?

I actually enjoy presenting. Once you get going, the time flies by.

Can you specify one or two memorable moments so far in your presenting career?

One moment was at ONS in 2014. Just as I noticed John Gremp [Chairman, President and CEO] sitting watching the presentation, the 3D cinema decided to stop working.

Please share a light-hearted anecdote...

We usually have a bottle of water next to the 3D booth which have our names on in pen so we don't mix them up. I had just finished a presentation and was holding the bottle as I started speaking with a customer. After a few minutes, the customer asked how the moustache-growing was coming along. It turned out that the ink had rubbed off on my hands and I must have wiped my face, so I had a perfect ink moustache.

Fun questions

1. Mind reading, so I can figure out what our customers are thinking!
2. Definitely a night owl.
3. I do try, but have to admit I am a bit of a coffee fanatic.
4. Salty.
5. I play the guitar... though I've not tried in years. Perhaps a better answer is I played the guitar. I was a bit of a genius with an ocarina at primary school.
6. Exercise then couch potato. Is that cheating?

One team

Building brand awareness globally is an essential element to communicating that we are "one company." Meet some of our employees who present at local trade shows, events and exhibitions.

Guilherme Branco (Brazil)

Vinicius Carvalho (Brazil)

Omar Dominguez Lopez (Mexico)

Russ McBeth

Current job title: Global Business Manager, Chevron
Time in current role: Six months
Time with FMC Technologies: 21 years

How many years have you been presenting on the booth?

Two years.

What does it mean to you personally to be presenting on behalf of FMC Technologies?

It's an honor and a challenge to be out front representing the company. I enjoy sharing the story of our technology and trying to make it understandable to a diverse audience. It's rewarding to have people comment that they learned something after the presentations.

What area/areas of specialism do you present on?

Field development and how all the pieces come together to function as a subsea system.

What types of questions do you get?

Questions cover the whole range from: "Why is it called a Xmas tree?" to: "What is your methodology for determining the size and number of anodes on your tree frame?"

Can you specify one/two memorable moments so far in your presenting career?

I had an opportunity to present our 3D theater to a group of Texas A&M University deans and advisors as part of an effort to convince them to create a new masters level program in Subsea Engineering. They were very engaged by the technology, and I like to think the interest they showed in the 3D theater presentation was one of the catalysts for the start of the new engineering program.

Fun questions

1. Flying.
2. Morning.
3. No.
4. Sweet.
5. Yes.
6. Exercise.

John Pierson

Current job title: Sales Manager, Eastern Region (covering the Caspian, Mediterranean, and East Africa regions), based in Woking
Time in current role: Two years
Time with FMC Technologies: Eleven-and-a-half years

How many years have you been presenting on the booth?

2014 was my first year at ONS.

What does it mean to you personally to be presenting on behalf of FMC Technologies?

It is a great honor and privilege to represent the company at the respective trade shows. We want to portray a positive and welcoming image to the industry, and I feel the team of presenters we use play an important role, not only in showcasing our capabilities, but also educating everyone from interns to senior executives.

How do you feel about presenting?

I really enjoy the feeling of standing in front of an audience and having the opportunity to present our capabilities in the subsea arena. It is always interesting to see people's reactions to the different animations that provide that in-depth look at the seabed environment.

What types of questions do you get?

We generally receive high-level questions about subsea equipment and our project experiences in different parts of the world.

Please share a light-hearted anecdote...

The most entertaining question I receive when presenting the theater in smaller forums is: "Can we have a copy of this software or purchase it from you?" That always gets a couple laughs from the audience.

Fun questions

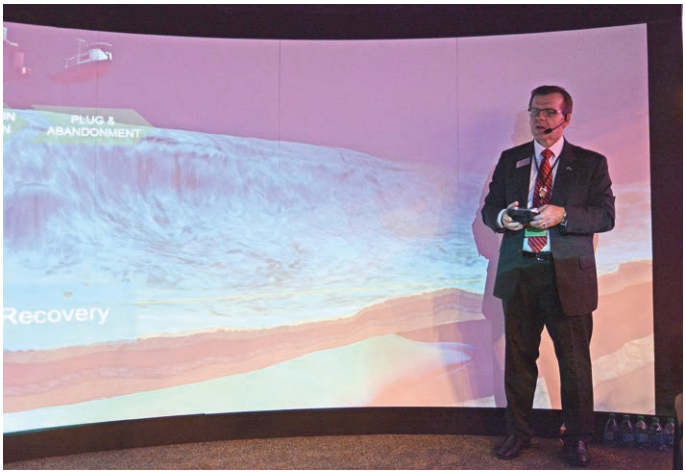
1. Flying.
2. Night owl.
3. Barely.
4. Both!
5. Not any more.
6. Exercise.

Craig Ferguson (Singapore)

Julia Hedderson (GoM)

Ross Hendricks (Australia)

Ove Fritz Jahnsen (Asker)



Mike Robinson

Current job title: Manager – Sales and Marketing Australia and New Zealand, Subsea Systems and Manager – Sales Asia Pacific and Middle East, Subsea Processing
Time in current role: Four years
Time with FMC Technologies: 25 years

How many years have you been presenting on the booth?

I started in 2004 in Norway by accident. I was researching the system between the planned short presentations done by others and discovered that the system allowed free flying and allowed views from above, below and then inside equipment (after we had "collision" switched off). During a learning session, I was asked by a visitor to explain how something worked in the animation, so I did this ad hoc, using free navigation and flying subsea. After 15 minutes or so, we turned around to discover we had perhaps 100 or so people listening. At that point, Peter MacInnes and others realized we had something very special. We then continued to present education sessions on subsea and gathered larger crowds, and even a Japanese film crew for a documentary.

What training have you received?

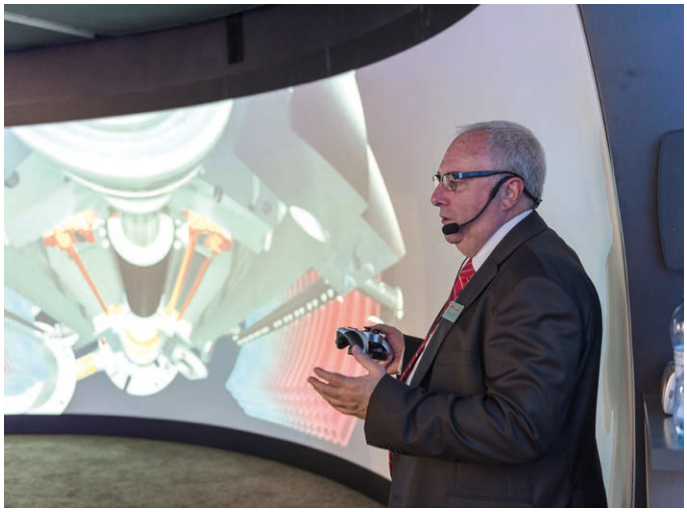
I had on-the-job training – built on external presentation and media training. Now I am part of the team that delivers training to new presenters.

Please share a light-hearted anecdote...

I've told too many of these in the past...

Fun questions

1. Flying.
2. Both!
3. Yes.
4. Sweet.
5. No – but I can E-string a guitar and tune it in the pitch black! I was a roadie for The Jam in the UK in 1980.
6. Exercise, cycling.



Gordon Affleck

Current job title: Sales Account Manager based in Aberdeen
Time in current role: Two years
Time with FMC Technologies: Two years

How do you feel about presenting?

It has been a challenging experience, not least in that I'm not a 'gamer' and had never previously used a PlayStation controller (too many buttons), but overall it is satisfying when a presentation goes well. Any laughs and applause are very gratefully received.

What training have you received?

I'm largely self-taught with encouragement from colleagues, Calum in particular.

Can you specify one or two memorable moments so far in your presenting career?

The system going down mid-presentation gives the heart rate a boost.

Please share a light-hearted anecdote...

My very first presentation, a few months after joining FMC Technologies, was to a group from an operator during a visit to the Dunfermline plant and I managed to show one project on the screen as I talked about an entirely different project. Fortunately, the group was from that operator's finance team, so I think I got away with it – although my then boss was giving me some rather quizzical looks.

Fun questions

1. I have all of those, that's why I'm in sales.
2. Both, but not at the same time.
3. Yes.
4. Salty.
5. Yes, the radio.
6. Exercising on the couch with a salty potato snack.

Lafaete Lima (Brazil)

Vitaly Mashkarenko (Russia)

Allen Neciosup (Mexico)

Arnt-Ove Pettersen (Norway)

Hamish Stewart

Current job title: Senior Sales Manager
Time in current role: Almost two years
Time with FMC Technologies: Seven years

What area/areas of specialism do you present on?

My key area is the operations, features and benefits of our work-class Remotely Operated Vehicles.

How do you feel about presenting?

Some have commented that I like to be the centre of attention – which may be true – but in reality, it is important to enjoy presenting particularly in a sales and marketing role.

What training have you received?

Back in 2011, the initial training was carried out pre oil shows led by Mike Robinson. It was quite informal but thorough, and you were mentored and guided. It was recognized that every presenter had their own style so rather than trying to create clones of presenters, Mike worked closely with you and your style and guided and refined your performance. This continues to this day and as the number of presenters evolved, more formal training has taken place at FMC Technologies locations globally to expand the portfolio of presenters.

What types of questions do you get?

How far, how deep and always how much it costs – although it's normally the competition asking that one!

Fun questions

1. Mind reading.
2. Night owl.
3. No, I only start firing on all cylinders post coffee No 2.
4. No preference, sweet or salty.
5. No, but the piano is on my list when I retire.
6. Exercise is more a necessity.

Charlie Weakly

Current job title: Field Development Manager, Major Tenders
Time in current role: One year in current role, four years in Field Development
Time with FMC Technologies: 12 years

How many years have you been presenting on the booth?

I have presented for the past three years, starting in 2012.

What does it mean to you personally to be presenting on behalf of FMC Technologies?

It is a privilege for me to represent FMC Technologies on the grand stage. I enjoy presenting to a diverse audience in a trade show environment with all of the energy and excitement that comes with being a part of our brand.

What area/areas of specialism do you present on?

Traditional subsea systems and subsea processing.

How do you feel about presenting?

It is an adrenaline rush. The atmosphere is fantastic.

What training have you received?

I trained in Norway and Houston on theater content. Personal experience is a big part of it, too.

What types of questions do you get?

How much does that weigh?
How much does that cost?
Who makes the software?

Can you specify one or two memorable moments so far in your presenting career?

Seeing John Gremp [Chairman, President and CEO] in the audience and presenting to Petrobras senior management were big moments for me.

Please share a light-hearted anecdote...

I think we have all been asked at least once if we are hired professional actors – it makes me laugh every time.

Fun questions

1. Flying.
2. Morning.
3. Yes.
4. Salty.
5. Yes, trombone.
6. Exercise.

Francisco Sosa (Mexico)

Colin Swan (Singapore)

Justin Vaughan (Singapore)

Ryan Vaughan (GoM)

There is nothing more important to Jerrod Holland than family. For the Fluid Control Services Base Manager at Broussard, Louisiana, it was his desire to stay close to home that led to his first role with FMC Technologies. What is more, he believes that the company's philosophy of valuing its people has helped him and others succeed

Part of the family

"I grew up in a small town called Comanche in Texas, with my parents and two older sisters," said Jerrod Holland. "It's just 30 miles south of Stephenville where FMC Technologies has its Fluid Control manufacturing plant."

He attended the local high school where one of his interests was auto mechanics. He was also an accomplished welder. In fact, he had planned to become an underwater welder and was all set to pursue that career before he started dating his future wife, Shea, and decided to stay at home.

Holland graduated high school in May 2000, moving on to Tarleton State University in Stephenville where he studied Business Administration. Nine months later, in January 2001, he also began working at FMC Technologies in the same town.

"Several friends recommended the company and told me how you could fit work commitments around the university schedule. I interviewed with several other companies but FMC Technologies stood out. So, I ended up studying and working at the same time."

Learning opportunity

His first role as a Material Handler was in the shipping and receiving department. "We'd take care of outgoing orders, packaging them up and getting them ready to ship out. That job helped me a lot. I became very knowledgeable about everything FMC Technologies builds, produces and distributes. I was inquisitive; I got to know a lot of people, and had many opportunities to learn about the company's facilities and customers."

When he graduated from Tarleton State University in December 2004, gaining a Bachelor of Science in Applied Sciences (BSAS) – Business Administration, he took on the role of Customer Service Associate (CSA) in the compact valve organization.

It was a small department; in fact Holland was the only CSA. It proved to be another valuable learning opportunity. "I wanted to know as much as possible about how we deal with customer requests. I'd visit the shop floor and get involved in planning and purchasing," he said.

After three years of diligent work in the CSA role, Holland was promoted to Buyer/Planner in 2007. He was in that post for one year before becoming a Project Coordinator in 2008. "Among other things, the compact valve organization provided equipment such as manifolds to offshore customers. I would prepare quotes on valves and fittings associated with individual projects to the relevant project manager in Houston who would, in turn, provide a comprehensive costing to the customer. I managed the subsequent order in the plant, purchasing the required materials, and making sure items were properly assembled and tested."

Significant move

A year later, in 2009, Holland moved on to carry out the same Project Coordinator role in the pump product line. Then, in October 2011, came a significant move when he was appointed Fluid Control Services Base Manager in Grand Junction, Colorado.

"At that point I wasn't sure which way to go with my career – stay in Stephenville or go for something completely out of my comfort zone." Encouraged by his then manager, Stephen Jones (who is now Global Sales Manager, Engineered and OEM Products), and after discussing matters with his wife, he opted to make the move.

The change was dramatic. He went from living in his home town and having no staff reporting to him to moving 1,000 miles (1,600 kilometers) away and being responsible for approximately 40 employees. He also had responsibilities for sites in Utah, New Mexico and North Dakota. Holland acknowledged that it was tough at first, but with the help of Regional Manager, Heath Boren, and his Grand Junction colleagues, Joey Ramos and Joe Salazar, he got to grips with the role.

"In truth, being a base manager opened up a lot of opportunities for me and my family. I've been asked to help out at sites from California to Alaska."

Holland's success at Grand Junction led to him being appointed Base Manager at Broussard and he moved there in June 2014.

Although it was difficult to leave people he had grown close to in Grand Junction, ultimately it was an easy decision to move to Broussard. "It's much closer to our family in Texas. There are lots of exciting changes taking place here and I'm enjoying getting to know the team. We have approximately 30 people and it's great to see how they're embracing the changes that are designed to make Broussard a more effective and efficient operation."

Holland believes people make the business. "I've been very fortunate to have met senior people in the company, and had help from managers such as Stephen Jones and Heath Boren. I've no doubt FMC Technologies is so successful because it demonstrates that it values its employees, and we get all the support we need to develop and progress."

> "There are lots of exciting changes taking place...and I'm enjoying getting to know the team."
>
> **Jerrod Holland, Fluid Control Services Base Manager, Broussard**

Jerrod Holland

Fluid Control Services Base Manager, Broussard, LA, U.S.

A life in one day

▶ I get up around 6:00am and I'm in the office by 7:00am. I like to get in early to review the previous day and think about the day ahead.

▶ My mornings involve catching up on emails, looking over reports and spending an hour or more on the shop floor talking to the team about our work commitments.

▶ Back in the office, one of the most important tasks is looking at development plans for our people. The most rewarding part of being a manager is seeing others progress. I also spend a lot of time considering how we can improve our process flow.

▶ My afternoons are much the same as the mornings, including another visit to the shop floor to measure our performance, and whether we need to take corrective steps to stay on track.

▶ I head home around 5:30pm or 6:00pm.

▶ Away from work I like to hunt, go to the lake and spend time with my wife, Shea and our son, Brenden (11) and daughter, Bailey (7), as well as meet up with our neighbors.

Jerrod Holland has been working with FMC Technologies in various capacities since 2001, and has seen his career progress to become Fluid Control Services Base Manager at Broussard in Louisiana, U.S.

Supporting success

Every leader faces challenges when they transition into a new role, whether it's addressing critical organizational issues with a new team, aligning with their boss, or in building new relationships. The Leadership Transition program is designed to ensure a smooth transition and continued success for FMC Technologies' senior leaders in their new areas of responsibility

As John Gremp, Chairman, President and CEO of FMC Technologies says, it is essential that as a company we invest in leadership talent to ensure we maintain our strong position as a technical and market leader and continue to grow our capabilities and our earnings.

But with growth comes additional challenges, in terms of the complexity and reach of the global organization, and the speed at which business gets conducted.

That's where the FMC Technologies Leadership Transition program aims to benefit both leaders and their teams, to make the transition into a new role smooth and successful, wherever it takes place.

Although the program has been in effect for some time, the recent renaming of the 'Organizational Development' element of Organizational Development and Training, known as OD&T, to Talent Management, and the transition of the 'Training' element into the University, should enable greater consistency and coordination of the initiative globally.

"The new set-up for the Talent Management network will provide a more globally aligned approach to offering the Leadership Transition program to more of our leaders who are taking up new challenges and different roles across the company," said Catherine Gillings, Director of Talent Management. "Although already widely adopted by senior leaders in the Surface Technologies business, we want to see greater uptake within Subsea Technologies and ultimately push for global adoption of the program.

"The feedback we've had from participants so far indicates that the program has been very helpful, supportive of their change, and allows them to be aware of challenges they might not have anticipated. From the company perspective, we are seeing leaders be more successful in their new roles. And from an individual perspective, I think the transitioning leaders feel more aligned with their own manager."

Better support

The Leadership Transition program is based on four steps *(see box out below)* which have been designed to give better support to leaders over the course of their first year in a significant, critical role in a new function, location or significantly bigger business.

"From the start, the transitioning leader and their manager should clarify and document their expectations regarding a wide variety of transition issues for the next 12 months," said Gillings. "This is the single most often ignored, but critical, step in a successful transition. Without time together and mutual understanding, the new leader can

Steps to success

1. Transitioning leader/manager meeting
- Define the role
- Understand the role in terms of business portfolio
- Clarify accountability
- Provide examples of success
- Share how thinking needs to be different in this role
- Give some direction on developing people in this new team and/or culture
- Identify contacts with prior experience in this or similar job/location

2. Transitioning leader and HR/ Talent Manager
Conduct the New Manager Assimilation process and plan next steps

3. Transitioning leader determines how to get honest, ongoing performance feedback from a variety of channels

4. Leader plans meeting with his/her manager after nine to 12 months to review progress on original expectations

"The feedback we've had from participants so far indicates that the program has been very helpful, supportive of their change, and allows them to be aware of challenges they might not have anticipated."

Catherine Gillings, Director, Talent Management (above)

be hindered from the start. Initiation of this is the responsibility of the new leader but his or her manager can also schedule this critical meeting if their new leader does not."

Responsibility for rolling out the program lies with both Talent Management and Human Resources. But Gillings added that the program has also been designed so that most of the steps can be followed independently, so any transitioning leader or their manager who chooses to adopt the program can do so.

In addition to the four-step guideline overview, participants receive Michael Watkins' book *The First 90 Days*. They also have up to three contact sessions during the process, including the previous incumbent as well as their manager, to review the different stages, and to give feedback on how their transition is developing.

Ultimately, the success of any leader moving into a new position is dependent upon a range of factors, and the Leadership Transition program is one of the initiatives the company puts in place to support its leaders through the process.

"We currently have five senior leaders in Surface Technologies, as well as two in Subsea Technologies, going through the program and all are transitioning very well," said Gillings. "Now, how much of that is due to a good choice of person for the new role? How much of it is due to the great teams who are reporting to them, or the support they are receiving? All of those factors play a part, but we want to do everything possible to ensure that every transition is successful."

For more information about the Leadership Transitions program, visit http://inside.net.fmcti.com/gtd/careermgmtsite/Documents/Leader%20Transition%20Worksheet.pdf

Leadership Transition in action

Graham Horn, General Manager, Surface Wellhead International

(pictured below)

When I took on the new position of General Manager for Surface Wellhead International – managing Europe, Africa, CIS, Asia Pacific and the Middle East – I benefited greatly from the Leadership Transition program.

I moved into the role on January 1 this year, and from the beginning I worked closely with both Catherine Gillings, Director of Talent Management, and my manager, Johan Pfeiffer, Vice President of Surface Technologies, to make the transition successful. We documented our expectations about what my new role would be and ensured there was alignment over what we wanted to achieve.

By discussing and then writing those objectives down, we have been able to follow through with regular meetings during the course of the year to make sure we're on track with our goals.

The program is an ongoing process and it has helped me take the time to think about what I'm trying to achieve in this position and to maintain my focus on that. It has allowed me to concentrate on my strategic role and also to ensure I pass on responsibilities within my team.

Now I'm looking at how I can also implement the Leadership Transition program as other people move inside the Surface Wellhead organization. Aspiring leaders can benefit from the experience.

Our vision and core values

We will be the undisputed leader in our markets, recognized for setting the technical and performance standards in all of our businesses and for creating customer success

COLLABORATION

We promote an environment of open and sharing cooperation within the company and with our suppliers and customers.

CUSTOMER-CENTERED

We create value by building close partnerships with our internal and external customers to achieve mutual success.

INNOVATION

We believe the best is yet to be invented. We encourage purposeful creativity and thoughtful risk taking to create value for all stakeholders.

INTEGRITY

We do what is right and we do what we say. We always act ethically, lawfully, and in accordance with our values.

QUALITY

We embrace the Five Absolutes of Quality. Through strict conformance to requirements, a prevention mindset and a zero-defect (ZD) performance standard, we eliminate the price of nonconformance and create customer success.

SAFETY & SUSTAINABILITY

We protect the health and safety of our people and promote the sustainability of the environment and the communities where we operate.

VALUING PEOPLE

We have the best people, invest in their development and provide opportunities for their growth. Our strength and success comes from respecting people, embracing diversity, and valuing different cultures.

To find out more about FMC Technologies' core values, and watch the video, go to *http://inside.net.fmcti.com//core_values/Pages/landing.aspx*

FMC Technologies