

# MOMENTUM



**Minerals—  
the Lifeblood of M-I SWACO**

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**COVER PHOTO:** The dump truck at the top of the barite mine near Battle Mountain, NV is a 500 T monster with tires that are nearly 12 ft (m) tall. Driving on the top tier of the pit mine, it demonstrates the scale of the tiers and the depth of the mine, which is often difficult to fathom.

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## TO OUR EMPLOYEES, CUSTOMERS AND SUPPLIERS

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**A**s 2012 comes to a close, I want to extend my gratitude to the employees of M-I SWACO and thank them for their commitment to our brand, to the promise we make to our customers to be customer-focused and solutions-driven, and to each other. You have stepped up and made 2012 a great year for M-I SWACO.

Together, we have faced organizational and structural changes, in addition to a challenging market environment. In May, Steve Orr became President of the Schlumberger Drilling Group, and I took over the role of President of M-I SWACO. And we all, as a company, became a segment within the Drilling Group. And with each change, I have seen all of you step up to the new challenges and opportunities, taking on new roles and responsibilities, but never losing your focus on the customer.

Marked with change and challenge, 2012 has been a difficult year. But I am proud of the way that we pulled together in these difficult times, buckled down to minimize expenses and maximize profits. And we did this while maintaining and improving how our customers view us. We embraced the challenges set for us and worked hard to achieve our goals.

In Q1, Steve Orr asked our employees to focus on four things: first, to make Schlumberger the number one drilling service company in the world; second, be the leading provider of environmental services and products; third, be the partner of choice for deepwater and HPHT drilling; and fourth, continue to be recognized as a global brand for completions and production.

In Q2, I introduced myself as the new President of M-I SWACO and told you that our strategy, direction and focus to our relentless customer-focused, solutions-driven culture will not change. I made a commitment to continued capital investment in emerging market opportunities like global shale development and the growing deep water sector.

In Q3, I talked to you about maintaining situational safety awareness in the workplace. We work in an industry that is often dangerous and it is vital to our safety and survival that we are always aware of the dangers around us, and our coworkers. To emphasize this awareness, we conducted an electrical hazard hunt to visually inspect our workplaces, especially high risk rig locations, and identify electrical hazards and correct those we found. I will say it again, I am very proud of how M-I SWACO pulls together to address safety concerns. But these safety hunts are the result of accidents that injured people, and I would much rather totally eliminate the accidents!

Throughout the year, we have seen continued integration with Schlumberger. Across the board, our segments, functions, operations, and our Technical Support community have reached out to related Schlumberger groups to find and create synergies between what we do and what they offer.

M-I SWACO is a strong segment, with people who are committed to safety, growing the brand, expanding our business and serving our customers. As markets change and new ones open up as old ones close, we adapt, grow stronger, and prosper.

This commitment to our business and to our customers has enabled us to weather the tough times this year and will carry us through whatever challenges 2013 presents us with.

I thank you for your hard work in 2012 and ask you to continue your focus and commitment to safety, and to perpetuate and strengthen our customer focused – solutions driven culture at M-I SWACO.



Joe Bacho  
M-I SWACO President

A handwritten signature in black ink, appearing to read "Joseph P. Bacho".

Joe Bacho  
M-I SWACO President

# World Momentum

## Senior Saudi Aramco representative visits North Course

In June 2012, Adel Ansari, Senior representative of Drilling Operation Support Unit of Saudi Aramco, visited the M-I SWACO North Course campus. Saudi Aramco is one of the most important clients in a global basis, and it has been going through a continuous evolution to transform itself in a global energy provider diversifying beyond its oil and gas roots. The visit was part of multiple technical exchanges organized with major providers in the Houston area.

The M-I SWACO Senior Executive Management offered a thorough set of presentations covering new technologies, R&E projects, Deepwater, Technical Services, QA/QC and Supply Chain. The discussions conducted to identify multiple action points aiming to accelerate the technical exchange and deployment of suitable solutions to Saudi Aramco needs.

The visit concluded with a tour to the campus including demonstrations of all in-house capabilities unique to the industry and the top notch support available.



From left to right are M-I SWACO Director of Deepwater Business Andrew Wilde, VP Drilling Solutions Lee Conn, Aramco Supervisor DOSU Adel Al'Ansari, M-I SWACO Engineering Manager for Support Services, Applied Engineering Manager Mario Zamora, and Director of R&D Customer Focus Dr. Jim Friedheim.

## M-I SWACO receives Industry Leader of the Year Award

At the Next Generation Africa Oil & Gas Summit, held in Accra, Ghana Sept. 25 – 27, M-I SWACO was named Industry Leader of the Year. The award was made in consideration of delegate feedback from various solution

provider's workshops – the M-I SWACO workshop was entitled 'Meeting the Zero Discharge Requirement for Offshore Drilling,' presented by VP EAF Jim Andrews, ES Manager EAF Steve Williams, NGA ES Manager Yomi Jewesimi, and CTG Business Development Manager Jurgen Joman.

The workshop content covered topics including regulatory frameworks in West Africa, targeted waste reduction and minimization technologies as well as drill cuttings handling, treatment and disposal. The workshop finished with a discussion on the challenges faced by M-I SWACO as a service company preparing to meet the operators' needs for zero-discharge implementation in Angola.

More than 60 key industry personnel were present at the summit, including senior executives from Addax, African Petroleum, BP, PanAtlantic, Shell and Statoil.



Jim Andrews, left, accepts the Industry Leader of the Year Award from Master of Ceremonies Kafui Dey.

# M-I SWACO Peru hosts a trio of Mundo Integral programs to benefit local kids

This year, M-I SWACO Peru developed three Mundo Integral projects to benefit children, education and environment. The main beneficiaries were more than 130 abandoned children who live in Aldeas Infantiles, organization that cares for, raises and educates them. The organization is just located four blocks far away from the M-I SWACO base in San Juan de Lurigancho, Peru.

For the first project in June, M-I SWACO participated in the recycling campaign "Cumple TU papel" where all the paper generated in offices and base is recollected for Aldeas Infatiles. Through an agreement with Kimberly Clark, an American personal care corporation that

This work was carried in August, with an investment of US\$ 5,000, helping to keep the houses in proper conditions for the children.

More than 20 M-I SWACO employees and relatives participated in the third project, held on Sept. 22, during



produces mostly paper-based consumer products, Aldeas Infantiles receive the paper money equivalent per each ton of recycled paper. The money feed 10 children per month.

The campaign has been well received, and in four months, we reached to recollect around 400 kg. Some employees took the initiative to their homes, bringing from there newspapers, magazines, old notebooks, etc. to help to collect more for the children and at the same time, save 17 trees per ton of recycle paper.

The second project was the replacement of 52 lineal meters of sewer pipe from the houses where these more than 130 children live. Pipes that were in bad condition and Aldeas Infantiles did not have the budget to replace them.

Starting from top, clockwise: M-I SWACO workers and children in Cell phone Station – Driving 4 Kids. Top right: M-I SWACO employees, relatives and the kids from Aldeas Infatiles. Above: Paola Leon, Victor Salazar, Carla Vera, Marjeli Carmona, Ever Pedriel and Rocio Zela with the boxes from "Cumple TU papel" program.

the formal handover of the second project, , held a Driving Workshop for more than 40 children. The program, Driving 4kids, taught children between five and 10 years old about the good practices for driving in a fun way.

Thanks to all employee and relatives, who have made a difference in the way that Mundo Integral continues to develop successfully in Peru.

## Two M-I SWACO employees complete OXY USA “Get On Board with Safety” Program

Ben Fullmer and Michael Brzezinski received certificates for completing the OXY USA, Inc. and OXY Long Beach, Inc. “Get On Board with Safety” Program, October 2, 2012. “Get On Board with Safety” has been a very successful program for OXY USA because only one person of the more than 1,250 contractors who have taken the course to date has been injured on the job.

Representing M-I SWACO from left to right, back row; Perry Lomond; Richard Bingham; Brian Rogers, front row; Ben Paiuk; Christina Nitse.



## Controllers meet in Sugar Land, TX for team building event

Sixty-five M-I SWACO controllers from around the world attended a Segment Financial Training class with great emphasis on improving their operational awareness and identifying how the function can better support operational management. Much of the material and classes was provided by the M-I SWACO Business Line Managers and the feedback from both sides was very positive.

The week included a team building event. The theme was a Chili Cook Off because most of the attendees were from outside Texas and even the U.S. The Texas themed event was a hit. The group was split into ten teams and each team had a team color, selected a team



captain, and cooked their own style of chili...all of which were actually edible!

A company called “Best Team Building” hosted the event and said that people rarely eat their own chili. But our teams did a great job. Sides to go with the chili – baked potatoes, fritos (for frito pies...which many had never even heard of), and of course cheese and onions – were provided. We washed it down with cold beer while George Strait played in the background.



Top left: Each group used their own recipe, based on a standard set of available ingredients to make their chili. Above: The entire controllers group gathered at the end of the week of training. Left: The controllers had to prove their coordination and ability to take instruction before they were allowed to cook their chili.

# Ingrid Ahrens, one of the guys

With long, dark hair and a beautiful smile, Ingrid is not just a pretty face. Ingrid Ahrens joined M-I SWACO as Norway's first ES offshore engineer. And testimony from coworkers proves that she has a good head on her shoulders.

Gavin Gerrard, M-I SWACO ES supervisor, worked with Ingrid on the Maersk Giant during the yard stay in Denmark, and also recently onboard the Rowan Stavanger performing a CLEANCUT<sup>†</sup> installation, from the first step almost to the last.

"She would put a lot of engineers who have been in the company for years to shame by the working ethic she has," he said. "And I was shocked by the way she could use a 9 in grinder in the modification of the screw conveyor."

Ingrid has never been afraid of creating her own path. She decided early to become an industrial mechanic since she's always been fond of fixing things. In Kristiansund, where she lives, she is frequently at Atlanterhavsbadet, swimming or in the training studio. In the summer time, she enjoys cruising on her motor bike or walking in the mountains. And during the winter she's a dedicated snowboarder.

"I love the excitement of a challenge," Ingrid said. "In my 12 years experience as an industrial mechanic, I've learned a lot about how to build and start up supply vessels, among other things."

She started her career as an industrial mechanic with STX OSV Søviknes, where she got very diverse experience within shipbuilding. Then she worked for Bekkjarvik Redskap where she was leased out to other companies, which in turn led her to Bergen Group BMV, before she joined M-I SWACO.

"Very rarely I have experienced difficulties," she said of working in a male dominated environment. "Although there is always someone who thinks that girls are helpless outside the kitchen! These attitudes just motivate me to disprove their prejudgments and show them that girls can be strong and capable, also doing this type of work. I feel I've succeeded, so I don't regret a minute that I chose this career path."

"Another thing that happens quite often is that when I meet new colleagues, everybody thinks they have to watch what they say, and that can be quite boring and tedious. I'm used to and like the opposite!"

Ingrid's dream is to work offshore in an exciting and challenging job. She has a small farm at home with plenty of space in a barn for car and mechanical projects.

"And maybe a landlubber who takes care of the dog and potential kids," Ingrid said.

Right: Ingrid has been accepted as 'one of the boys' thanks to her work ethic and skill. Below: Ingrid demonstrates her mechanical skills.



She would also like to continue with an engineering degree because she constantly strives to learn more. Her thirst for knowledge is verified by Gavin.

"Ingrid reads all work instruction packs prior to performing any task associated with an installation or operation," he said.

During the Rowan Stavanger, Gavin was again

on the same shift as her performing full CLEANCUT and ENVIROUNIT<sup>†</sup> installation. One night after he came back from the meeting he could not find her, and he looked out the window and here she was sitting outside reading the installation report in a very windy and rainy weather.

"That's great to see nowadays; most engineers would be in the coffee shop reading it," Gavin said.

Willy Henderson, another M-I SWACO ES supervisor, first met Ingrid at the heliport, prior to going to Gulkfaks C.

"I had been informed prior to arrival that I had a new start who had never been offshore, and it was a female," he said. "Having a new start who has never been offshore makes a supervisor's job a lot harder as you have to look after them as well as trying to teach them and do your own job. At the heliport we checked in for our flight then waited in the waiting area. When the flight was called, we went to pass through security to find Ingrid had left her ID in her bag, which was now stowed on the helicopter. I passed through security and the whole flight waited patiently for our VIP to turn up. At this point I'm thinking, 'Why me?' and expecting to have a nightmare trip babysitting."

To my surprise, Ingrid far exceeded any expectations I would have for anyone's first trip. Ingrid is hard working and already has many of the skills needed for the position due to her previous work in heavy industry. Ingrid could be left unsupervised to complete tasks she has been shown only a few times. I would definitely class her among the best new employees I've ever worked with and better than some with many years' experience."

# Guy Fawkes Night celebration raises money for Round Table group

**O**n the night of Nov. 5, commemorations take place down the length and breadth of Britain to mark "Guy Fawkes Night." Or more specifically, the failure of the Gunpowder Plot of 1605, a secret plan hatched by a small number of conspirators bent on overthrowing King James I of England by blowing up the Houses of Parliament in London while he was there. One of the conspirators, Guy Fawkes, was caught red-handed with the gunpowder barrels before they could act and he subsequently met his end for his troubles.

However, on the very night the plot was foiled, bonfires were built and set alight by the people of London to celebrate the safety of the King and since that



Mark Sanders works the event that raised £9,000 (\$14,000) for the Round Table group.

time this event has been celebrated annually throughout the country with fireworks and a bonfire, often accompanied with an effigy of Guy Fawkes himself.

Today, attendance at larger organised events is encouraged on safety grounds in place of families hosting their own back-yard affairs. They are also opportunities to raise funds for charity.

This year, M-I SWACO helped sponsor an organised event on Royal Deeside near Aberdeen by the Banchory and District Round Table organisation, members of whom include Senior Project Engineer for Integrated Projects Colin McKenzie and Technical Advisor Mark Sanders of the Aberdeen Research

and Technology Centre. On the night, folk braved a chilly evening in Banchory to attend the event and together helped raise over £9,000 (\$14,000) for the Round Table group for local good causes. Long live Guy Fawkes!



The bonfire drew a large crowd to celebrate Guy Fawkes Night.

## MagcoBar Receives Service Award from CACT

At the CACT (CNOOC, Agip, Chevron, Texaco) annual drilling review meeting held in Shenzhen in October, MagcoBar received an award from the extended reach drilling team recognizing their outstanding contribution to the success of the HZ 24-4-7 extended reach drilling project.

Bao JiaCheng, MagcoBar project engineer for CACT, accepted the award from Li Wei, Managing director of CACT, at the drilling review meeting.

Pictured with the award are (left to right): David Power, general manager MagcoBar; Ge LanHua, senior drilling engineer CACT; Zhou GuanBo, engineering manager MagcoBar; Bao JiaCheng, project engineer MagcoBar; Bessie Jia, senior drilling and cementing fluids engineer; Jamie Manuel, operations manager South China MagcoBar.



# Chairman of the board Tony Isaac visits North Course

Chairman of the Board for Schlumberger, Tony Isaac, spent Sept. 13 touring Schlumberger facilities around Houston, TX, including the M-I SWACO North Course facility. Proudly accompanying him on the tour was Drilling Group President and former M-I SWACO President Steve Orr. During their quick visit to the M-I SWACO headquarters, Isaac met with M-I SWACO President Joe Bacho and heard short presentations

on various aspects of M-I SWACO Research and Engineering. Vice President of R&E Jim Bruton directed talks on the many labs, environmental affairs and testing, completion technology and more. While it was a quick tour, lasting just a few hours, Isaac was visibly impressed with the technology and the people who call North Course home.

Tony Isaac has been a director of the Schlumberger since 2003, and is the Board's lead independent director. He was the former

Chief Executive of The BOC Group plc, an international group with three business segments consisting of Gases and Related Products, Vacuum Technology and Supply Chain Solutions, from September 1999 to October 2006. He is also the senior independent director of the Hogg Robinson Group, a corporate travel services company, where he serves on its remuneration committee and is chairman of its audit committee.



Left: From left to right are Jim Bruton, Tony Isaac, Steve Orr and Joe Bacho. Below: Senior Director of QHSE Dr. Art Leuterman, left, presents Tony Isaac with information on Environmental and Occupation Health Support Services.

## China Oilman's Golf Tournament

China Nanhai Magcobar recently sponsored the 24<sup>th</sup> Annual China Oilman's Golf Tournament held in Macau from Oct. 17-19. Magcobar had the pleasure of hosting clients Ian Johnston, Daewoo, and Andrew Vincent, Husky. The team were appropriately attired in Magcobar (M-I SWACO) colors and made quite an impression. Over 120 golfers attended, representing the majority of the oil companies and service companies working in China and Asia.

Pictured left to right are; David Power, Magcobar; Gary Cole, M-I SWACO; Andrew Vincent, Husky' Ian Johnston, Daewoo. Not pictured is Jamie Manuel, Magcobar.



# M-I SWACO named Leader in Innovation at NG Downstream

**A**t the Next Generation Downstream Summit Europe, held in Milan, Italy Oct. 14–16, M-I SWACO was named as the Leader in Innovation. More than 50 high level delegates from the main oil companies who participate in the downstream oil sector in Europe attended the three-day event, which is seen as “the place where oil and gas executives and solution providers will further the conversation, advance the vision and come together

again in this ever-evolving and ever-exciting industry.” Leading companies like M-I SWACO presented workshops to educate the industry on new developments and innovative ideas.

Director ES Advanced Waste Management Diana Andrade, Global Business Line Manager Tank Cleaning Martin Hunter and Global Business Line Manager Production Waste Management Graeme Morison presented a workshop on integrated sludge management.



Far left: Diana Andrade, center, with Director General of UK-PIA Chris Hunt, left, and Senior VP of KBC Mike Rutkowski. Left: M-I SWACO was named the winner of the Leader in Innovation award at the Next Generation Downstream Summit Europe, held Oct. 14–16 in Milan, Italy. Accepting the award were, left to right, Graeme Morrison, Diana Andrade and Martin Hunter.

## IKF-SERVICES celebrates 20 years

On July 27, IKF-SERVICES celebrated its 20th anniversary; the celebration held at left coast of Volga river. Celebration began with an official part, opened by Vladimir Kuksov, then M-I SWACO VP and now Schlumberger Drilling Group VP. Later there was a banquet, accompanied by singing and dancing performances. When official part was over, guests relocated to the beach to enjoy entertainment. Warm weather and friendly atmosphere encouraged guests to participate in sport battles – football, volleyball and various contests. Everybody enjoyed perception of a real birthday party!

IKF-SERVICES launched June 25, 1992 as IKF (International Kasp Fluids). In 2002, M-I Drilling Fluids UK Limited and IKF-SERVICES signed an Accession and Cooperation agreement; as a result IKF became part of M-I SWACO, giving a large boost to company development.

Nowadays, IKF-SERVICES is a competent member of large Schlumberger family. The company's head office is located in Volgograd, Russia and today has 306 employees.



Above: Enjoying games and sport battles at the beach. Right: Vladimir Kuksov talks to the gathered revelers, celebrating 20 years together.

# Reigning champions Western Siberia extend winning streak to three years

The first Sunday of September is a professional holiday in Russia for the oil and gas industry workers. The football tournament arranged to coincide with this holiday is a longtime tradition: teams from South and North, Western Siberia and East regions faced each other on the Moscow field.

The Western Siberia team became longest reigning football champion, winning three consecutive tournaments.

While some took part in harsh football rivalries, others selected a more peaceful entertainment participating in drum training with the most talented ones creating a girls instrumental band and presenting their new hit at the celebratory dinner.



Above: Drum training. Right: Team captains shake before the match.

Everybody could find amusement by their preference, the only problem was to decide what activity attracts you the most – relax at yoga classes, test your archery skills or just ride a bike and play volleyball. It's not hard to guess, that after make-up classes opened, you could easily find the female part of company there.

## “The Short and Long of Pasta” — Son of ES Ops Manager featured in Chinese kids magazine

The son of ES Operations Manager in Beijing, China, Alex Buchan was featured in a local monthly magazine aimed at expatriate families in China's capital city. The story featured Joseph Buchan making pasta with Chef de Cuisine Francesco Maria Sanna.

The article gives the simple recipe by Sanna and shows step-by-step instructions for mixing the dough and turning it into whatever type of pasta you'd like. It even gives a rough guide to pasta diameters: 1.5 mm for capellini, 2-3 mm for tagliolini, 5mm for tatliateline, 8 mm for tagliatelle, 2.5-3 mm for papardell, and 10 x 15 cm for lasagna.

Francesco Maria Sanna is the chef de cuisine for Bene Italian Restaurant at Sheraton Beijing Dongcheng Hotel.



Left: Feature image of the article showing Joseph Buchan winding out pasta with the help of Chef de Cuisine Francesco Maria Sanna. Below: The main page of the article with the instructions.

He started his career in his hometown of Cagliari, Italy.

Joseph Buchan, ten, attends The British School of Beijing. He enjoys playing football (UK) and anything electronic he can get his hands on (PS3, iPad, Minecraft, etc.). He practices Tang Soo Do, an ancient Korean martial art

and studies Mandarin Chinese at school (he can speak more than his father!).

All information and illustrations were provided by *beijingkids* magazine.

# Continuous Improvement

## CI Belts

Currently, there are 29 Black Belts, 83 Orange Belts, and 687 White Belts in the CI Belt Program.

During the past quarter, two White Belt Classes in Moscow and Aberdeen were held with 25 people being trained. An Orange Belt with 7 students and a Black Belt class with 6 students were held in Florence, Kentucky.

## White Belts



WB Moscow: Nikolay Likarovsky, Vitaly Kharin, Eugeny Vishnevetsky, Polina Shakhmatova, Nikita Chebunin, Dmitry Logunov, Sergey Chaban, Aleksey Kanonerov, Mikhail Leguta, Pavel Ovsyannikov, Tatyana Bondarenko, Vladimir Baev, Dinara Pogodina, Denis Kumanin.



B Aberdeen: Alexander Kudryavtsev, Claire Main, Dinesh Chandrasekaran, Kenny Burns, Maria O'Byrne, Mostafa Hamed.



BB Florence: Curtis Buxton, Mo Phyfer, Ana Hernandez Chacon, Felipe Liporace, Alan Hendry, Dwight Rider



OB Florence: Mohamed Kandil, Lonny Cathcart, Thomas Wirthlin, Julie Kaiser, Philip Glass, Charles DeRouen, Amanda Gibson

## Certifications



Yasser El Dallal (right) is presented his Orange Belt Certification by David Moore.

# NGC and Germany go live with Demand Planning Pilots

Demand Planning reached a major milestone in October. The final testing step, User Acceptance Testing (UAT) of the new FORECAST 2.0 system support tool was completed. North Gulf Coast (NGC) completed UAT week of October 15 and Germany week of October 22.

Operations personnel listed below participated in the UAT, which involved hands-on experience of using the tool. Many of the operations personnel had been instrumental in the tool development during previous process and tool development sessions.

## NGC

**Project Engineers:** Jody Richards, Alex Stewart, Wes Collier, Paul Stelly, Damian Vickers, Sabrina Jemulidin, Timothy Armand.

**Warehouse Managers:** Ron Domangue, Allan Fusulier, Mike Weekly, Vincent Marsiglia, Lynn Herbert, Donald Babin, Dale Leboeuf, Randy Fruge.

**District Managers:** Wayne Matlock, Holly McNaughton, Leonard Savoy, Zack Kelsey, Audi Paz De Lara.

## Germany

**Logistics and Materials:** Andrea Settnik, Bianca Gruber and Julia Hauer

**Project Engineers:** Henning Soeker, Christian Dierkes, Nancy Kurth, Werner Hennig, Operations Manager, and Robert Huelke, Country Manager.

Management at both locations signed off on UAT acceptance and agreed they were ready to "Go Live." This means FORECAST 2.0 is now set up in production using real data, real time. The goal is to complete two full Demand Planning cycles in November and December, and to fine tune the tool throughout this time in readiness for a staged global roll-out throughout 2013.

We want to recognize and thank NGC and Germany for their valued contributions and insights in developing the M-I SWACO Global Demand Planning & Business improvement process.



The German team.



Allan Fusulier.

# 6S for success

By Max Yeh, ASA CI Champion

In July 2012, Singapore ES workshop conducted a four-day 6S event to help location accelerate STEM progression. The event served dual purposes—helping Singapore ES work shop complete 6S program roll out and serving as a training session to deliver standardized 6S training to the ES workshop staff in ASA region. It was a very successful event with over 23 participants from various locations of countries in ASA.

The approach to the training is based hand-on experience with minimal in-class power point presentation. The event started with a short in-class training session and workshop visit at the SPE (An Schlumberger Artificial Integration Center) in Singapore, located 15 minutes away from the MI-SWACO ES workshop. It was an invaluable experience where attendees had a chance to learn the 6S concepts as well as physically see concepts are applied in real life environment.

After the half day on-site training, the rest of the three days was dedicated to practical learning in the ES workshop. The second day started with group conducting a 6S audit to determine baseline score and identify issues that need to be addressed. The 23 participants were divided into three teams and led by experience personnel to perform the audit. After the audit, the each team wrote down the issues on flip charts and discussed observations with the entire team.

As first step of the 6S program, Safety, HSE related issues were highlighted and resources were assigned to address all observations ranging from chemical waste disposal, equipment handling, eye wash station/fire extinguisher placement and record keeping, lighting in area and etc... This step is to set the tone that safety is the most important element in the program.

After the audit and defining action points, the teams started with Sort exercise where material are

segregated per their need and use frequency. The idea is to perform a general cleaning to de-clutter the work space store by storing the frequently used items at working location and throw away the items that are no longer needed. For the less frequently used material/tools, if there are no appropriate storage space to store them, these material are Red Tagged and stored in the Red Tag staging area for future disposition.

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**The second step is Set In Order where all tools and equipment are stored and labeled at the point of use locations.**

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The second step is Set In Order where all tools and equipment are stored and labeled at the point of use locations. The idea is to have home for everything and have everything in its home. With tools/material in its assigned place, the staff can reduce time required for sorting and searching for tools and material in the work shop. In addition, the team also defined and labeled the workshop floor for different operation process steps. Furthermore, the outside yard was also labeled for incoming (Red Tag) and outgoing (Green Tag) equipment area to segregate areas for storing ready to use and not ready to use equipment.

After Sit-In-Order step, the team proceeded to fourth step Shine to ensure all

areas, tools, equipment, cleaned and safe for inspection and operate. This gave the area a fresh look and set standards how the areas should be maintained going forward. Pictures of the cleaned areas are posted at location to emphasize the rules.

The next element of 6S is Standardize. For Standardize, the team defined area responsibilities where each team member is responsible for upkeep their designated area. Material and tools are cleaned and maintained in a good working condition. Standardized work and high level operating procedures are agreed and posted on the



The cleaned up machine area.



Attendees were: Indonesia - Bundi Sugiawa, Mahdar Mahdar; China - Sun Fei, Pang Jun; Thailand – Sutas Longseng, Olarn Suwannarid; Malaysia - Gavin Green, Hisham Awang Su, Wong Kim Sang; Kuala Lumpur – Max Yeh, David Wilson (not pictured); Singapore - Miahai Rotariv, Razvan-Marian Milea, David Lim Boon Chong, Syed Falle Rumi, Tahn Hock Heng, Richard Tan, Roy Catto, Mike Ritchie, Gordon Thomson, Naing Aung Aung Thet, Noor Azhar, Lee Siang Wah.

visible locations. Audit schedule and frequencies were also defined and weekly status scores are listed in the visual 6S in the designed wall space inside of the work shop.

The last step of 6S is Sustain. This is traditionally the most difficult part to achieve and maintain. Since the CI event was planned with site management leading the effort, with full support from the site management the entire team has fully embraced 6S principals. Since the CI event in July, the Singapore team has continued to improve the work area. All the work shop staff and site management know their roles and responsibilities and taking ownership of following the 6S principles. Frequent audits will also be conducted to highlight issues and assign resources to follow up findings.

The Singapore ES workshop 6S program is an excellent example of management vision, team work and willingness to be part of Continuous Improvement journey. The initial 6S audit score in beginning of June was 1.19 out of 5. The area must score at least 4 out of 5 to achieve a 6S area certified status. Leading up to July the local team has taken ownership and taking proper actions addressing the audit findings and bringing the 6S audit score to 2.9 out of 5 before the CI event. With effort from 23 participants, the

team followed the 6S implementation steps and close out majority of the action items. By the end of the 3.5 day CI event, the team was able to bring the score to 4.2 out of 5 and be certified as a 6S area. Furthermore, In October, 2012 the Singapore ES workshop has been officially declared to have obtained STEM Tier 1 workshop status. This is a sign of a team's determination to be the best in class.

Besides helping ES workshop achieving 6S area certified status, as part of the training, the class attendees also received a standardized 6S deployment package which includes 6S training presentation, Red Tag template, management and self-audit forms, audit schedule, 6S star template and trend chart. In addition, each participant has also been awarded a 6S training certificate. The participants are now equipped with necessary knowledge with hands-on practical experience to properly implement 6S program in their own locations to support STEM progression.

## HDD, Mining & Waterwell



In each issue, *Momentum* sits down with one of the many experts within the M-I SWACO organization for a candid look at their area of expertise and how it impacts not only our company, but the industry as well.

UP CLOSE recently visited with Troy Giesler, Global Operations Manager for HDD, Mining and Waterwell, to learn more about this little known segment of M-I SWACO that is responsible for managing drilling service for horizontal directional drilling, drilling as used in mining operations and drilling water wells.

Troy Giesler, Global Operations Manager for HDD, Mining and Waterwell

### Momentum:

**What is the origin of the HDD, Mining and Waterwell group?**

### Troy Giesler:

A gentleman by the name of Billy McLarin started this group about 17 or 18 years ago. He started chasing some of the mining contractors or mining businesses out in the Nevada market for M-I SWACO. Then there was an acquisition of Summit Drilling Fluids in 1997; that's where I came from. Summit was working both oil and gas in the Rockies and they were working the Nevada, Peru and Philippines markets for mining. This was about the same time that M-I SWACO was rebuilding the oil field group in Rocky Mountains, so they took over Summit's petroleum operation and we started chasing the mining business strictly.

As we grew, we acquired

a company called Parchem in Mississippi, which really put us into the horizontal directional drilling part of the business. So, that established us into the two realms, mining and horizontal directional drilling for pipelines or conduits for telephones and electrical cable.

In the last six years, we have grown at a pace of 20 to 25%, every year. We started out around \$30 million in sales and we're bumping close to \$90 million now. Of course, we had to deal with the 2009 slowdown and we currently are seeing a slowdown in the mining markets. But we still are growing. As of the middle of the year, we had grown at a 24% growth pace so far this year. We've grown extremely fast in the last few years.

Our strong markets are North and South America, with plenty of room to

grow in most areas. Our eastern hemisphere has been difficult but we're making new progress. We just recently opened up in Africa, so we're chasing the Africa market. We just changed our arrangements in Australia, which hopefully will allow us to be profitable in Australia. That's a quick history of the group.

### Momentum:

**What is HDD, Mining and Waterwell and how does what you do differ from other M-I SWACO business lines?**

### T.G.:

Each part of it is different. The mining side, we chase core drilling, or the exploration drilling for these mines. They use very small rigs. The difference is we run with an 1/8 inch annulus on the outside of

the pipe so if we really run into any problems in the hole, we have to fix it quick or it's going to give us a lot of problems. We're drilling mainly hard rock so that's not as big a deal but you'll cut through a fracture and get into what we call gouge or clays and if they swell up, they can cause you a lot of trouble.

A core rig doesn't have very much volume, per se, compared to the level the oilfield industry is used to. Where we're fortunate is we'll go on a mine site and one core rig might generate us \$5,000 a month. That's not very much if you look at what oil and gas is used to doing. But what happens is we have 20 rigs on that site. So if we have 20 rigs on that site, all of a sudden that's \$100,000 a month; all of a sudden that's something to look at.

Our Nevada operation is doing way over a million

dollars a month and it's all mining drilling; specifically coring or reverse circulation drilling. Precious metals are our big market for us. Iron ore probably comes in next behind that, and that's primarily in Brazil, but we expect to be doing more of that in Australia in the future.

Then you've got the horizontal directional drilling, which is the HDD part of the business and kind of the acronym that we fall under when people talk about our group. That's basically where we go in and drill large diameter holes for pipelines like those that run under roads, and that can be up to as big as 72 inches in diameter. And now they're getting to be very long. The record right now is about 16,000 ft (4,900 m).

## Momentum:

**What is the primary business focus of the group?**

## T.G.:

In different parts of the world, we've been able to build a business where the commodity products like bentonite are heavily used. We've been trying to upgrade the systems for years. It's very difficult, because they have an old mind set and it's hard to get these people to change after they've been doing it one way for a long time.

But we do a lot of training. That's the big part of our business. Then we do the smaller stuff with distributors where we sell to the small rigs that do the wires that you'll see crossing a road or a railroad

track, and putting in telecommunications or power lines. The big thing is to try to put a lot of these power lines underground now, which is difficult because you've got heat problems with the power lines.

Waterwell is a market that's been out there for a

most of our bentonites. Gary does our bentonite and other product development.

Then in the last year, Lee Conn, VP Drilling Solutions, asked us to start looking more into geothermal and how we can lead there.

We have some real



A blind shaft rig showing the bit, hanging at the bottom, being attached to the drill string. The bit is approximately 6 ft (1.8 m) in diameter.

long time that we still are working to get into. Part of our problem there is we don't have all the products yet made internally, like grouts, so we're trying to fix that this year. We're working with Bob Bailey, VP of Global Minerals, on that right now.

Gary Matula takes the lead in the designing of

good synergies with Schlumberger, because they own a company called GeothermEx, and so we've started communications with them on trying to lead into doing more with them as they get projects.

And the synergy also on the mining side with Schlumberger Water. They are actively working in the

mining markets also, and so we have some synergies with them that we are trying to build on.

We have a lot of room for market growth even in some of our established areas. Like South America doesn't have as much of the horizontal directional drilling except in Brazil and a little bit in Argentina and Colombia. Their primary market has been mining. So they're looking into other construction drilling like pylons installations.

## Momentum:

**How are you interacting with the greater Schlumberger company?**

## T.G.:

We've had some meetings with them in regards to what their desires are in the mining industry. They have Schlumberger Water group that primarily works the water side.

I'm really excited about what Schlumberger brings, because Schlumberger gives us tremendous power in the marketplace. You banter the Schlumberger name around and you're saying, "Hey, look, we got stamina, we got strength." It's amazing how many markets don't know M-I SWACO, but they still know Schlumberger.

We've done some stuff with Schlumberger Carbon. They drill wells down to put the CO<sub>2</sub> in the ground from a lot of these coal power plants. And that's kind of an interesting business that we've found with Schlumberger. We've picked up a lot of the synergies of the oddball businesses.

**Momentum:**

**Globally, where does HDD, Mining & Waterwell operate?**

**T.G.:**

Each region has its different strengths, like the primary business of Latin America (LAM) is mining, with a little bit of HDD. I would say in North America it's about almost 50/50 HDD to mining. And we're primarily stronger in U.S. versus Canada. Europe is primarily horizontal directional drilling with a little bit of mining. Africa is a new market and primarily we're chasing mining, but that's has big growth market is the future for mining. If those countries can stay stable, it'll be the future mining hotspot.

Russia is primarily HDD; 70/30 HDD to mining right now. Then we're just getting some opportunities in the Middle East (MEA). In Australia/Asia, we've just changed our structure in that market this year. Next year I expect it to be a very strong market for us. It's a big market in the mining business over in Australia and we're just scratching the surface. We figure, a seventy to eighty million dollar market, and we just have a couple million of it.

One thing, I'd like to stress is that we have a really great team.

**Momentum:**

**Who are the people that make up the group? Are they engineers or miners?**

**T.G.:**

We have some civil engineers that work for us, but I'd say most of the guys are just hardworking guys. They've worked the rigs and they know how to relate to the guys on the rigs, which is really a great asset to us.

The majority of our staff has been through our mud schools, so they have the ability to do anything they want to in their career. If they want to go to oil and gas, they can. But most of them have come from the industry. We try to hire primarily from the mining industry or HDD business and then bring them in, train them, put them back into those industries.

We've had guys that we've actually hired that we've put out in the field and it's been quite a while before we put them in the mud school because they make immediate impact because they know how to drill. So they go out there and they can make just simple suggestions that make us look good without even making a mud recommendation.

In most locations, we're spread pretty thin. Our guy that works Africa just got his first person to work with out of the Ivory Coast. He's been traveling to West Africa and going down to South Africa to try to get this business going. For a long time in Russia, we had just one guy, and now we've got three; now we are trying to get an engineering base set up now. We've been people-light probably most of our growth, always.

We try to cross train,



A waterwell rig.

so they might have HDD knowledge and we then will send them on a learning expedition to a mining site with some of our mining guys, or vice versa. So it's more hands-on type training.

What Gary has been adding significantly over the last few years is just overall training, and we've taken our schools and tried to not just teach basic mud properties, we've tried to tie the economics of what these fluids are doing to the teachings in the school.

Why are we worried about this property? Because it's going to cause this kind of a problem for you, and that's what I believe the new animation is going to help.

**Momentum:**

**And that's the purpose of the animation series that is in development?**

**Gary Matula:**

That's right. It's covered in there, the problems that a poorly run mud system can cause that they don't think about until you point it out to them; for example, what's really happening when you try to shove that thick mud through the bore hole, the pressure required to do it and effect that this pressure pulse has on hole stability.

**T.G.:**

And we also have the iPhone and Android app that is designed to enable

rig operators with smart phones to perform calculations for pump output, hole volume, annular volume and more.

I just got back from New Zealand and I ran into a guy that works for our CLEANCUT<sup>®</sup> business. He says, "Have you guys seen this M-I SWACO app? It can do all these hole volumes? I use it all the time."

Just like any part of the mud business, these guys focus on the cost of the mud, but they forget how much it influences the overall cost of the drilling, and we have to teach that all the time. We'll go into a client, say, "We may not be the cheapest, but we think we can make your drilling project cheaper."

We did a project for an HDD client one time out in California where we ran DRILPLEX, in heavy gravels. And when they do these projects, they do multiple reams. So they drill their pilot hole and then they'll come out with a pilot hole with a 9-3/4 in bit, and then they'll ream maybe to 14 or 15 inches, then 24, and then 36 and then 48, depending on how big a hole they

need to put the product pipe in; and they usually do 1-1/2 times the size of the product pipe, for their hole volume of their hole.

Our guys came up with DRILPLEX fluid, put it in the hole, the drilling contractor cut off two full reams. So instead of having a four ream project, he was able to do it in like two different reams, which really sped up the drilling process.

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**"Have you seen the  
M-I SWACO HDD,  
Mining & Waterwell  
app? It can do all  
these hole volumes?  
I use it all the time."**

A CLEANCUT hand in New Zealand talking to Troy Giesler.

And it was really funny, at the end of the job, he took one of the guys aside and said, "Hey, your mud bill was more than what you said it would be." And he was giving us a hard time about it. basically, our guy, knowing his drilling, said, "Well, yeah, but we figure we cut at least two

weeks off your drilling, at \$30,000 to \$40,000 a day for that rig, you want to pay the extra \$10,000 in mud, or did you want that rig time?" And he just stopped giving us a hard time right there. So it's good to know their business at the same time, you know?

We try to find contractors or operators that think that in an overall project cost. First of all, they're usually the better ones in the industry and they're the easiest to work with on that. I mean, they understand it. The guys that pinch pennies usually are the ones that are in trouble anyway, 90% of the time. And you try to help them, you try to teach them.

### Momentum:

**Do you find that there's a necessity for local products, specialized products for a region?**

### T.G.:

Yeah, there are, and we do have specialized products in different regions that are just for that region. Mainly for the cost issue. You're dealing with transporta-

tion and you're better off if you can build some of these things locally than haul them around the world.

Like the bentonite.

Left: A Horizontal Directional Drilling (HDD) rig showing the bit and drillstring about to advance into the hole.

Bentonite is a bulk product. At one time when the dollar was getting real weak, we were moving bentonite from Wyoming all over the world, but now with the dollar strengthening to the Euro, we're now having to find that we've got to get something built out of the bentonites that are available to us in Europe. And this is a big difference because we're used to using sodium bentonites and now we're having to work these same products with a calcium base, which makes it more difficult to get the same properties.

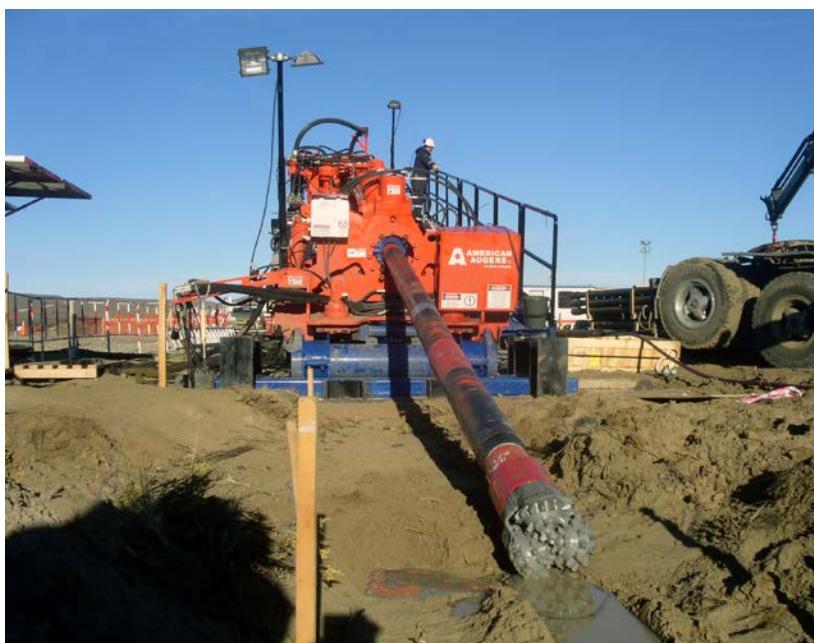
### Momentum:

**Are the drilling fluids basically the same as oilfield?**

### T.G.:

Most of them are. We adapt them a little bit. We have a few products that are specialized to the mining industry and specialized to the HDD business. We've taken the DRILPLEX<sup>®</sup> fluid and we have a DRILPLEX<sup>®</sup> HDD fluid, which is a lower cost DRILPLEX product that doesn't have the temperature stability issues that oilfield needs. We don't need it so we don't have it in the system. It gives us something to be more competitive in the market.

With most of the mud systems, we try to stay with most of the product line of MI SWACO to keep inventories low and we adapt from there the best we can. Gary has developed a new high performance grease. They use a grease where they grease the sides of the drill rods.



He's had to redesign our bentonites over the last few years to make sure we have enough material to last us through the life of the mines. We actually had a worry there for awhile we were going to run out of our base products. But Gary's been able to fix that.

them in the future.

Most of your major mining companies will try to run their operations in third world countries just like they do if they were in a first world country.

An example is in the Philippines, where they ask us to go get rig mats for

lab and the people here to come up with a new program to where we can get more intimately involved in helping these contractors properly dispose of their fluids at the end of their project. As a matter of fact, when I first came, one of the things that we dis-

cussed with the environmental lab was to adapt some of their tests to make them applicable to water-based fluids for land use, because they were so geared up for offshore.

And so they've built the fathead minnow technology to run fresh water acute toxicity tests. And now since that service is being offered, more and more people within the whole organization

are seeing the benefit of the

fresh water data, so that's something that everybody is kind of benefiting from now. Something that we sort of planted the seed and now everybody's benefiting from it.

**T.G.:**

And that's the same thing with the CD-250<sup>†</sup> centrifuge. We just got the first real tests done on a project. The mining companies in these very arid areas, like Chile, where the water is premium are desperate for water, absolutely desperate; they don't have enough to process their

own ore. So far, all the kickback on it has been really positive, that first of all they get their mud back, and then we can clean up that water where it's reusable.

Currently, our competition is throwing a system out there that uses a lot of chemicals to clean up the fluid. Well, the problem is you've still got those chemicals in the fluid so you can't really reuse that water. We're trying to make it so, with the centrifuge, that we could reuse that water. And that, we think is going to be a real growth market for us in the future.

There are places in Chile that have never seen rain for 600 years, since the conquistadors arrived. So they are just so desperate to hold on to any water they got and the mining companies are willing to pay for any new technology to come in and try something new, to save that water.

One of the new things we're chasing is cleaning up tailing ponds. Mines have huge tailing ponds. As they expand that mine, if they've built a tailing pond for this size, say a small mine, and all of a sudden they decide to make it a bigger mine, that tailing pond is already built and they don't want to rebuild it, they got to find a way to get those solids out.

We're actually talking to several mining companies about introducing some of the ES equipment that's out there to clean the solids prior to dumping them in their tailings pond.



A mining rig.

## Momentum:

**Do you have the same kind HSE issues?**

**T.G.:**

Same thing. The mines are getting just as strict as a Chevron is or a Shell on HSE. They appreciate our programs, the Schlumberger programs; it's a selling point. We're selling the environmental side heavily when we go out there because, again, these mines are now starting to look at all that, and know they've got to keep control of that or it's going to come back and be a problem for

them so they can catch the oil coming off the rigs. At the same time we're doing that, we're watching the locals dump our product on the ground so they can steal a two dollar bucket. So you know, the dichotomies are quite interesting. But the mining companies are being very careful about how they treat the environment and deal with it.

**G.M.:**

In a kind of follow on to that is that disposal is becoming more and more of an issue. We're working with the environmental

## Momentum:

**What about the equipment you mentioned, the centrifuges?**

## T.G.:

That's a new growth area for us in the last few years. We actually set up new business lines in the accounting system. Actually, something we ought to explain before we get too far is how it actually works. HDD group runs as a sub line in the accounting system, to either DS or ES, so we can track the revenue and cost, then in consolidation this revenue goes in to the overall product line.

We're slowly building that part of the business. We've built a new piece of equipment for the mining side, a new centrifuge. It's actually an old centrifuge that they resurrected for us. It's what we call a CD-250 centrifuge and is designed for smaller volumes. Again, a core rig pumps maybe 20 gallons a minute. Our centrifuge cleans at 70 gallons a minute so we still got quite a bit of overkill there but it was the quickest way to get a centrifuge for the market by pulling up an old design.

## Momentum:

**How else does the group differentiate itself from the competition?**

## G.M.:

One of the differentiators that we're really trying to take advantage of is the service side of it. And we're told all the time about Brand X, that customers never see them; they

don't get any service; if they're buying from some other supplier, the product delivery may be delayed. And our guys are out there all the time as best as their schedule allows to take care of the guys on the rig. And the guys on those rigs really appreciate it, to the point to where they bring up that that's one of the differentiators why they like to work with M-I SWACO.

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**"Thick is not what we're after. We're looking for carrying capacity in the fluid."**

Troy Giesler, Global Operations Manager for HDD, Mining and Waterwell

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## T.G.:

We've come up with some really innovative things, and the guys really get out there and try to do their best to solve the problems at the field level. What's interesting is there's a lot of push inside M-I SWACO for new technology. Usually, our new technology is old technology, though.

For example, we are now introducing the KLA-GARD<sup>+</sup> shale stabilizer heavily into the industries that we work. It's an old product for M-I SWACO, but it has a place in our market, but it's not been here before.

A lot of the technologies that these mining guys and HDD guys run are 40 and 50 year old technologies. They're terrible, and getting a guy that's been doing it for 20 odd years on an HDD

rig to change to a more elaborate mud system is very difficult because they think, "I've been doing it for 20 years this way. I don't see why I need to change."

But what's interesting is where we've moved into markets that are new, we've been very successful getting new technology in. So like Brazil, we were in the early parts of the HDD business and we actually were able to introduce DRILPLEX water-based viscosifier in those markets and those guys got used to it right away. They don't do it like they do in North America where it's just bentonite, bentonite and more bentonite.

So one of the things like Gary stresses in his mud school is "thick is not what we're after." We're looking for carrying capacities in the fluid. And so many guys in the industries where we work think thick is great, and it causes them more problems than what they know, and we keep trying to teach them different.

## Momentum:

**Who are your primary clients? They're not the Chevrons and Exxon Mobils like we see in the oilfield?**

## T.G.:

No, it's the Newmont's, the Barracks on the mining side, or the Boart Longyear or the Majors drilling. Boart Longyear is the largest drilling contractor in the world. They have over 1,200 rigs around the world. They have 1,000 core and reverse circulation rigs for mining. Major has about 800. Those

are the big boys.

And there's a lot of mom and pops. It's easy to get into the core business, so there are a lot of mom and pop businesses that we do business with. And then we do work direct with some of the mines, like Newmont, Barrick, we've had some really great success stories going in and helping them there. But also we do a lot of business directly through the contractors.

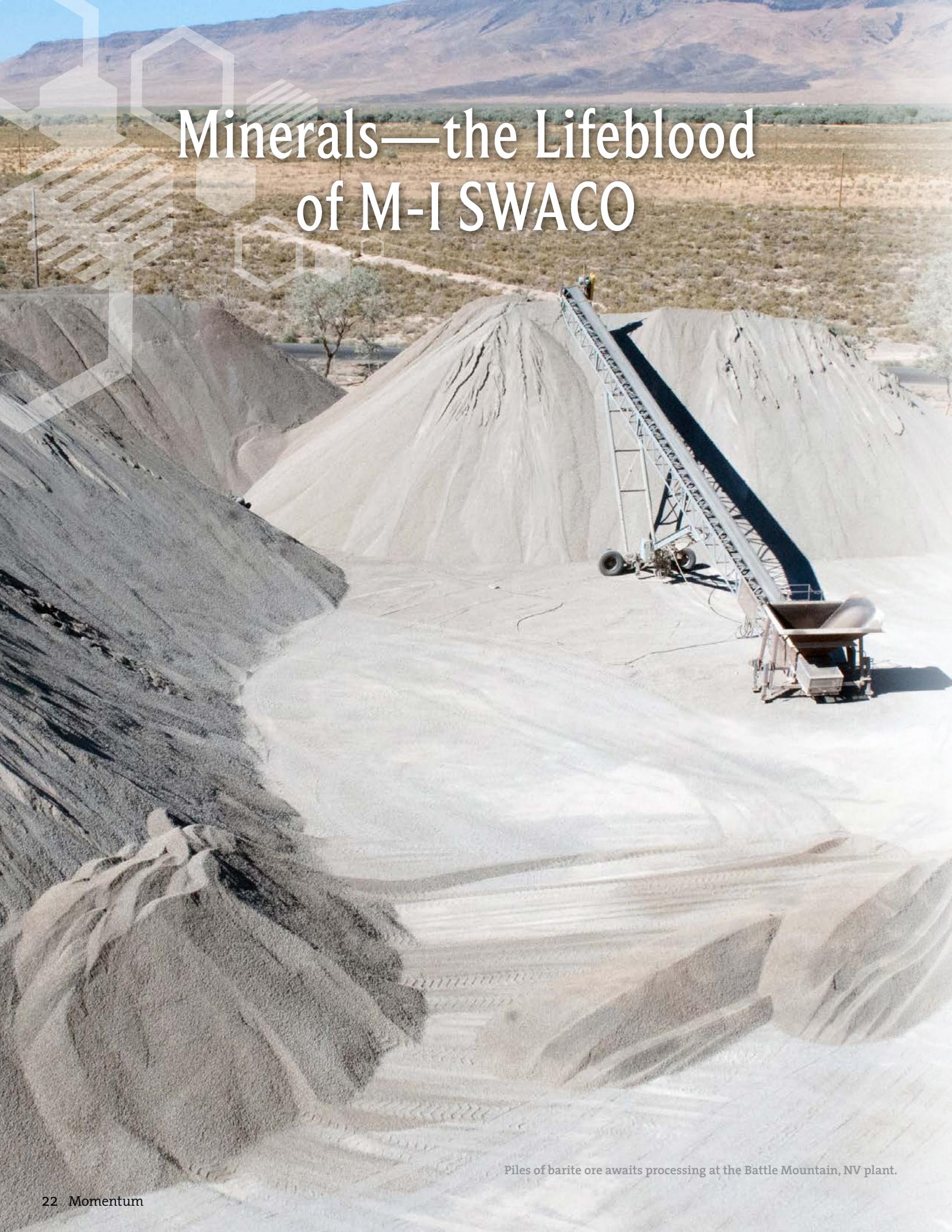
I would say probably in North America, we get a big chunk of our mining business direct, from the mines. In other parts of the world we go through drilling contractors. And most of the horizontal directional drilling business is through the drilling contractors. Now we've talked to the pipelines about going direct with us, they've considered it a couple times. They have huge liability out there. If that contractor screws up, it comes back on that pipeline company.

## Momentum:

**Where can people go learn about HDD, Mining and Waterwell group?**

## T.G.:

We do have a website. It's [www.miswaco.com/hddmw](http://www.miswaco.com/hddmw).



# Minerals—the Lifeblood of M-I SWACO

Piles of barite ore awaits processing at the Battle Mountain, NV plant.



Bentonite dries while it awaits processing at the Greybull, WY plant.

**It may come as a surprise to many within M-I SWACO that the company owns and operates its own barite and bentonite mines and mineral grinding plants in strategic locations around the world. The reason is simple: it enables M-I SWACO to be vertically integrated and ensure a reliable supply of the most important elements of the drilling fluids that made the company's reputation what it is with customers around the world.**

"Barite and bentonite are the lifeblood of M-I SWACO," said Vice President of Product Delivery for M-I SWACO, Kate Friar. "They are used in all of our fluids."

Barite is used in the oilfield to add weight to the drilling fluid. This weight is important in keeping wellbore pressures in check while drilling. The ore is ground to American Petroleum Institute (API) specifications of three to 74 microns in particle size. Pure barite has a specific gravity of 4.5 g/cm<sup>3</sup>, but drilling-grade barite must be 4.2 g/cm<sup>3</sup> to meet API specifications.

Bentonite is a clay material that is also used in drilling mud. It swells considerably in the presence of water, making it ideal for protecting formations from invasion by drilling fluids.

Lower grade, non-oilfield quality bentonite is used in a variety of products. It is the grey absorbent material found in many brands of cat litter. It is also used in products including asphalt roads, dynamite, detergents, face cream, fruit juice, hair treatment, matches, oil paint, printer's ink, roofing paper, sheep and cattle dips, sewage treatment, shoe polish, and much more.

"Production from the mine in Greybull serves six primary markets," said Joe Cheatham, Greybull grinding plant manager, "the oilfield, binders for iron ore pelletizing, animal feed, civil engineering and environmental construction such as liners and sealants for landfills, and a most unlikely commodity for a traditional oil and gas service company, cat litter."

**"Without barite and bentonite, there would be no M-I SWACO."** Joe Bacho, M-I SWACO President

The Minerals Group, headed by Bob Bailey, Vice President of Global Minerals, has locations worldwide including grinding plants in Indonesia, Scotland, England, Norway, Morocco, Nigeria, Algeria, Saudi Arabia, Egypt, Kuwait, Brazil, Bolivia, Azerbaijan, and throughout the U.S. in Texas, Louisiana, Nevada and Wyoming.

The global capabilities of the M-I SWACO Minerals group include mining operations in four countries in addition to the ability to source minerals from China. The mines use both underground and open pit mining techniques and produce approximately 1.3 million tons of barite and bentonite each year, with proven

reserves in excess of 20 years.

Grinding capacity is 3.4 million tons per year, split evenly between the U.S. and the rest of the world. There are 27 facilities worldwide including six mines in the U.S., Morocco, Brazil and Scotland, and 21 grinding plants spread throughout the world. Additional mines are being reviewed for future investment and will require additional grinding plants to accommodate them.

Of all the mines owned by M-I SWACO, the mines in the U.S. are responsible for a significant portion of the total tonnage mined each year. In Nevada, barite is the primary ore mined, while in Greybull, Wyoming, bentonite is mined. Each has an associated grinding plant nearby to process the ore and prepare it for shipment to rig sites around the world.

Located in the Bighorn Basin of north Central Wyoming, the Greybull plant is a high capacity facility that produces numerous bentonite products for M-I SWACO worldwide. For the most part, the bentonite reserves are located on mining claims that were located under the Mining Act of May 10, 1872.

There are approximately 1,300 claims that total 26,000 acres. M-I SWACO has a minable reserve base of over 30,000,000 tons that would fill 1.2 billion 50 lb (23 kg) bags of M-I Gel. The reserves have been calculated using an 8:1 stripping ratio (bank cubic yards of overburden to ton of bentonite) and the average haul distance from a large

plant stockpile area by hauling and mixing various field stockpiles. The blended stockpiles are designed to produce different products for different industries, i.e., horizontal directional drilling, oil well, waterwell and mining, drilling muds, foundry binders, iron ore pelletizing binders, animal feeds, civil engineering, and much more.

The plant, which is located across a narrow, single lane bridge that crosses the Big Horn River, consists of feeders, crushers, dryers, mills, air classifiers, bagging machines, bulk storage, an assortment of material conveyors, warehousing and shipping operations. The plant's present milling capacity is 700,000 tons per year.



The crew of the Greystone mine in Nevada with Schlumberger Drilling Group President Steve Orr (kneeling, far left), M-I SWACO President Joe Bacho (standing, fourth from the left), VP of Global Minerals Bob Bailey (standing, sixth from the left) and VP of Product Delivery Kate Friar (standing, far right).

portion of the reserves to the processing plant is currently fifteen miles.

The bentonite beds are contained, for the most part, in the Frontier geological formation. The various bentonite beds or seams vary in thickness from a few inches to as much as ten feet and are continuous over large areas.

The bentonite beds or seams are drilled, sampled and tested prior to stripping with bulldozers and scrapers. The topsoil is removed and stored for mine reclamation before the shale overburden is removed and backfilled into a mined area. The stripped clay is re-drilled, tested for quality, field dried and marked for a particular stockpile to await hauling to the plant. Large stockpiles of clay are maintained in the mining area for the haul to the plant stockpile area for blending to meet product specifications. Finally, mined areas are backfilled, contoured, top soiled and seeded with native species to comply with Wyoming Reclamation laws.

Sampling and testing is conducted throughout the mining stockpiling process. Blended stockpiles are made at the

The quality assurance laboratory is located at the plant for continuous monitoring of the bentonite from the mine through the milling and shipping process, and a retained sample is taken from each batch and shipment to make sure it meets the required specifications for that product.

Currently, there are 127 employees who work at the plant and mine working six days a week, 24 hours a day to produce some of the highest quality products on the market today.

The Greybull bentonite operation began in 1952 with 70 years of estimated reserves. Today, 60 years later, there is



an estimated 20 years of reserves remaining. Capacity in 1955 was 350,000 tons per year (finished) and has been increased to 700,000 tons per year. Today, the Greybull and nearby Johnson mines strip approximately 7,000,000 cubic yards of waste and mines 875,000 tons of clay per year. They have mined over 18 million tons of bentonite ore since beginning operation in 1952.

In practical terms, this equates to mining a hole the size of an American football field (100 yards x 50 yards) that would be 14.5 mi (23.3 km) deep. In 2012, they mined 650,000 tons of ore plus 5,200,000 yards of overburden, averaging 16,000 tons T per day. This would fill a hole 55

**In 2012, they mined 650,000 tons of ore, averaging 16,000 T per day... filling a hole 55 ft deep and 100 yards long, every week. This pile would cover the M-I SWACO headquarters in Houston to the bottom of the fourth floor every week.**

feet deep and 100 yards long, every week. This pile would cover the M-I SWACO headquarters building at North Course in Houston, TX to the bottom of the fourth floor every week. The ore and waste mined since 1952 at Greybull, Wyoming and Battle Mountain, Nevada would fill 2.6 million rail cars enough to stretch around the world in one continuous line.

In 1955, the mine employed 71 people including Mine Supervisor Frank Hinckley. Today, his son, Mart Hinckley holds that roll. Many of the current 192 employees trace employment back three generations.

Similarly, the Greystone mine in Nevada has mined 10,517,903 tons of barite from 1955 through July 2012. It has an estimated 1.5 million tons of reserves, or an estimate 5.3 years of production if rates remain at the current 300,000 tons per year.

An old mine nearby, the Mountain Springs location, is being reexamined and is planned to be opened in 2016 with full production in 2018. It has an estimated 2.2 million tons of reserves, which would allow it to operate for about seven years. Other properties around the area are being tested and evaluated for future barite mining. Between these

future sites are an estimated 10 million tons of reserves.

The Greystone mine was first discovered as an outcrop of barite by Basque sheep herders in the late 1940s. They took samples to the Magnet Cove Barium Corporation (Magcobar), which is the 'M' in M-I SWACO. Claims were staked in 1951 by W.G. Lee, Lee F. Hand and George R. Dyer for Dresser Magcobar, and mining started in 1955.

The barite is sent to the Battle Mountain, NV grinding plant for processing. The plant is about 35 mi (56 km) from the mines. In 1955, when the plant opened, it had a production capacity of 70,000 tons per year. Today, it runs at 300,000 tons per year of ground barite. This equates to

3,200 railcars or 12,800 truckloads of ore.

The barite ore is exploited using open pit methods of mining. They are similar in design to a typical rock quarry with

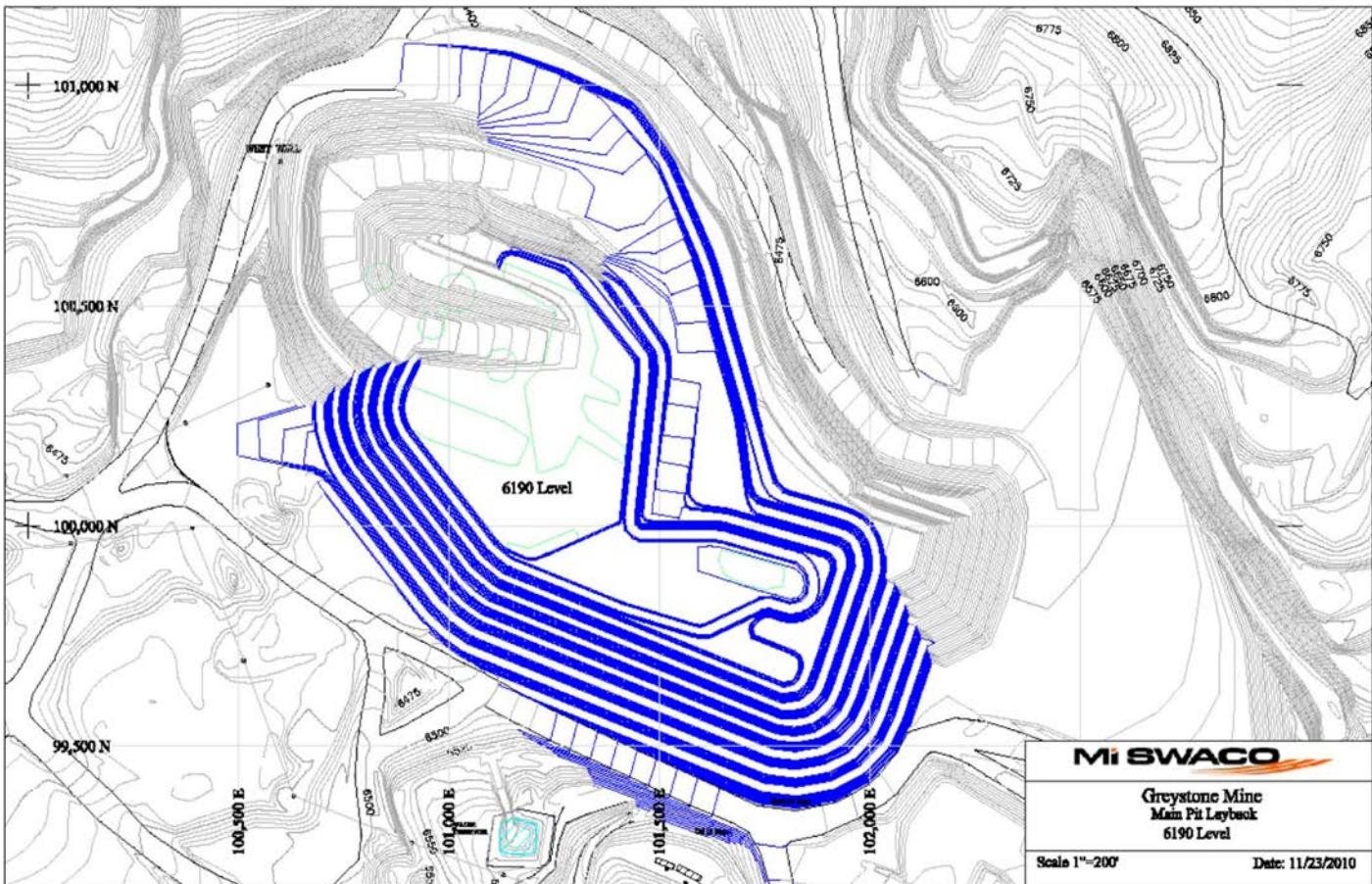
terraced sides, or benches, that serve to keep the hole from falling in on itself as well as providing a road surface for mining trucks to drive into and out of the pit. High explosives are used to shatter the rock. Then large earth movers and trucks move into the pit. The earth movers fill the trucks, which haul the rock to a nearby jig plant where the ore is separated from the overburden.

The barite ore is selectively mined, crushed, screened and jigged at the mine, then hauled to the grinding plant where it is stockpiled and crushed to minus fij inch and ground in four Raymond Roller Mills to 3% plus 200 mesh. It is then shipped to customers in North America via rail and truck in either bag or bulk form.

Maintaining the mines and grinding plants like those in Greybull and Battle Mountain around the world enables M-I SWACO to not only remain competitive because it can provide minerals for its drilling fluids at a lower price point, but also ensures that the company's supply will always be available. In recent years, Chinese barite has been a major player in the minerals industry. However, prices for Chinese barite have risen as much as 200% recently, which means that with company owned mines, M-I SWACO can acquire

Below far left: The barite grinding plant in Battle Mountain, NV. Below middle: A bulldozer uses its riper to chew up the ground, enabling other equipment to scoop it up (below right) and dump it into the massive 500T capacity dump trucks.





Above: The final pit design layout for the Greybull Mine showing the tiered steps as the depth increases. Right: The Greybull, WY bentonite grinding plant.

the minerals it needs at a third of the price of importing it from China; a significant competitive advantage.

"The ability to find the high-grade ore required for oilfield use is getting more and more difficult," said Friar. "Owning the mines gives us a significant competitive advantage."

But, Friar said, M-I SWACO and Schlumberger must continue to invest capex in the mines and the equipment used to maintain what the company already has and ensure that the mines and ore will be available well into the future.

Much of the M-I SWACO equipment, including the massive 50 T dump trucks used to haul the ore from the pit to the jig plant, are twenty years old or older.

"But you wouldn't know it to look at them," Friar said.

Bailey recognized early the strength of the Standard Equipment Maintenance (STEM) program instituted by the Environmental Solutions (ES) group to create a formalized and common maintenance program for centrifuges and other ES equipment. He has implemented a similar program at the mines, grinding plants and maintenance shops that service the mining equipment. The result is equipment that is well maintained and ready to serve many more years.

"The maintenance shops are well organized, clean and set," said Friar. "We're looking at the same sort of performance at the mines, as well."

Local staff have taken the STEM ideas and made them



their own. The STEM principles have been applied at the maintenance shop in Greybull, in particular, after Tony Clarke, STEM Champion, visited and literally hauled old equipment outside and told them to dump it. The crews quickly picked up on the advantages of STEM and the pride in their shops shows in what they are doing.

In fact, the Battle Mountain plant reached 660 days without a loss time incident (LTI) on Aug. 1 and the Greystone mine reached 1,000 days with no LTI on Oct. 28., a testimony to their commitment to safety.

The challenge at the grinding plants is finding the time to change out the old, worn equipment with new. Often running at full capacity to meet the demand for product, the plant crews must work around operational equipment, find ways to do preventative maintenance and ensure equipment is up to date.

Despite these challenges, the managers Joe Cheatham in Greybull and Stephen Pluemer in Battle Mountain are finding ways to keep their plants running at optimal capacity. The Greybull grinding plant installed a new robotic sacking system that will enable the plant to increase its output while removing the human element from the physically demanding and repetitious task of filling the 50 and 100 lb (23 and 46 kg) sacks of bentonite. In 2011, the operations in Battle Mountain and Greybull shipped 6,500,000 bags of products to our customers around the world. The robotic systems required an expansion of the plant facilities, but it will pay dividends by enabling the plants to meet demands more safely and less expensively. The Battle Mountain facility has also installed a robotic system in 2012 and is continuously looking for new ways to increase productivity.

This type of investment is vital to the future of the minerals capabilities of M-I SWACO. As the high-grade ore becomes harder to find and new methods are required to reenter old mines or treat the ore to ensure it provides the capabilities required, new mines and new equipment must be part of the investment the company makes in itself.

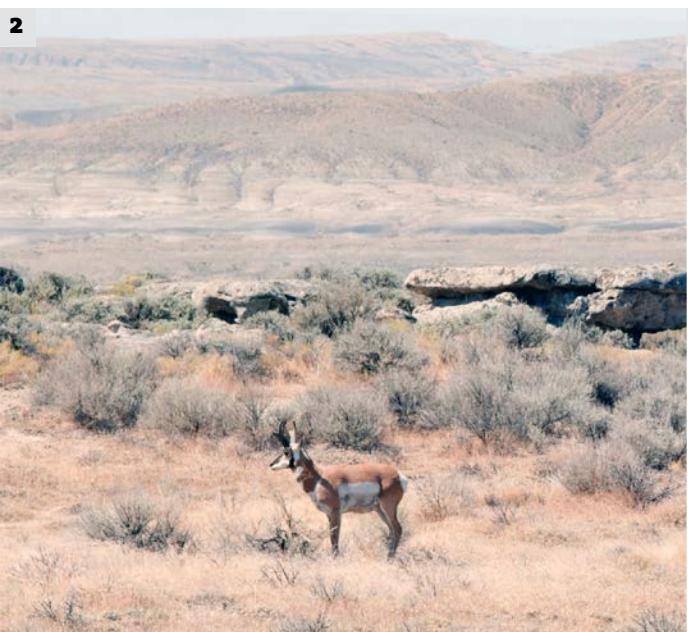
Both the Greybull, Wyoming bentonite operation and

Right: A small mine dump truck with executive visitors next to it, tires as tall as the tallest visitor. Below left: The robotic arm of the automatic bagger at the Greybull, WY plant will significantly increase production while reducing repetitive stress and physical labor required to bag the bentonite ore for delivery to customer rig sites.



Middle right: Schlumberger Drilling Group President Steve Orr visits with X, at the Battle Mountain, NV grinding plant. Above: A small rail engine is used at the Greybull, WY grinding plant to shuttle train cars into place for loading of bulk bentonite ore that is transported by train throughout the U.S.

the Battle Mountain, Nevada barite operation have been in operation for 60 years, but as Kate Friar pointed out, Bob Bailey and his team have a 25 year plan in place to ensure that M-I SWACO have the facilities and the reserves to sustain the lifeblood of M-I SWACO into the future.



6



**1** Cody, WY bills itself as the "Rodeo Capital of the World." Here a cowgirl lassos a calf in the calf roping competition that requires the rider to catch the calf by throwing a lasso or loop of rope around the running calf's neck, dismount the horse and tie three of the calf's legs together.

**2** A mule deer, indigenous to western North America, named for its large mule-like ears, grazes near the Greybull, WY mine.

**3** A professional bull rider attempts to stay mounted for 8 seconds while the nearly 1T beast tries to buck him off. It has been called "the most dangerous 8 seconds in sports."

**4** An old pit mine in Nevada that has filled with water. From the top of this mine to the water is about 200 ft. The water depth, to the bottom of the mine is estimated to be another 200 ft or more.

**5** The view of Battle Mountain, NV from the top of the barite grinding plant.

**6** From left to right X, Battle Mountain District Manager Stephen Plummer, Kate Friar, Y, Joe Bacho, Bob Bailey and Steve Orr stand at the bottom of the Greystone mine pit.

**7** Kate Friar, seated in the cab, gets instruction on how to operate the earth mover by Z.

**8** At the Cody, WY rodeo, the nightly event is opened with U.S. National Anthem and a rider standing on horseback with the U.S. flag.

7



8



## Standard Equipment Maintenance (STEM) program reaching new heights

There have been significant advancements across the whole of ES with STEM this year. That means more equipment than ever before being maintained to a higher standard be it on the Rig or in the maintenance facility, utilizing the STEM methodology. Assets being transferred across Areas or regions are being accompanied by good maintenance records.

In January we had 71 ES facilities around the world, of which 16 were at the lowest standard of Tier 4, a further 21 at Tier 3 and 41 at Tier 2. Not one facility met the new requirement and could boast of being Tier 1, the highest standard, demonstrating good maintenance practices in the field, and in the facility.

That's a different picture right now; I am pleased to say that we currently have 59 facilities, of which 10 meet the highest standard of Tier 1, with 44 at Tier 2, and 5 at Tier 3 with only 3 facilities at Tier 4.

"That's 92% of our ES operations delivering STEM for our customers in the field or the facility at Tier 2 or higher," said Tony Clarke, global STEM manager.

STEM documentation has been released for the following Product lines:

- Centrifuge
- Dryer
- Shaker
- Disc Choke
- Filtration

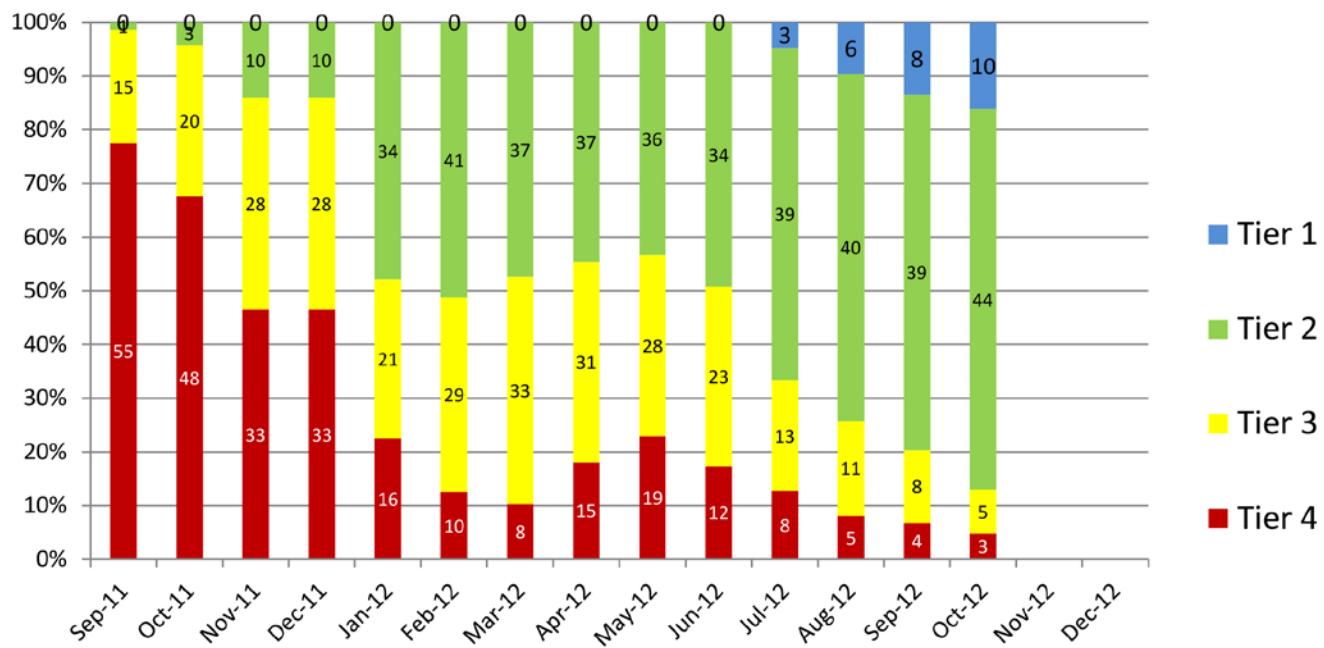
Documentation is currently in progress for augers, CLEANCUT system, LPAC console, CARBONTRACKER meter, auto chokes, vacuums and mud gas separators.

Current Es operations having achieved Tier 1 are:

- MEA - Dubai
- NAM- Scott, Spruce Grove and Casper
- LAM- Catu, Ecuador and Colombia
- EAF- Celle and Aberdeen
- ASA- Singapore

In 2013 we will be extending the STEM initiative to include Liquid Mud Plants, Filtration and Minerals.

**Global Tier Status**



# Dubai, UAE

By Mark Hughes, STEM Implementation Manager, MEA

The ES Workshop in Dubai, UAE was recently awarded STEM Tier 1 status following an audit conducted by Tony Clarke, Global STEM manager, and Gordon Thomson, STEM manager ASA/MEA. This was a tremendous achievement by the whole M-I SWACO (Swaco Arabia) team, culminating in the facility being one of the first in the company to achieve Tier 1 class.



The SWACO Arabia STEM Tier 1 shop.

will be invited to Dubai to learn at firsthand how STEM has been successfully implemented. Year end targets for the region include a further facility to attain Tier 1, whilst all other locations must achieve a minimum of Tier 2.

"This is an important milestone for Dubai to achieve Tier 1 status in implementation of the STEM program in MEA," said David Moore, VP MEA. "This will be the benchmark for all other ES workshops in the region to follow and we expect the same standard in all our workshops by 2013. This is important so we can exceed the service quality expectations of our customers and optimize our return on assets for the company."

As with most workshops, given a very heavy workload and incessant demand, the initial reaction was, "How do we find the time?"

This was addressed by using the assistance of the Reliability Group, working steadily on each issue on a tier-by-tier basis, and by sharing the tasks and responsibilities with various team members.

## Critical Success Factors:

- Dedicated personnel (in Workshop) to provide consistency and continuity
- Proper training
- Implement and Practice – it may not be perfect to begin with but get going and refine over time
- Commitment from all parties
- Plan and scope the project – manage it by tackling in 'bit-sized chunks'
- Use correct documentation – it's all provided on Encompass

- Team-based – get the right people together (with the right attitude) to share the objective – Dubai's team included Workshop Supervisor, Administrator and Technical department
- Internal Audits – continually self-audit so that you know where you are at and clarify what needs to be done. Follow up meetings, action plans and standard Project management techniques to ensure a successful outcome

There are many challenges to creating a Tier 1 facility; training, documentation, tools and equipment, etc. but the critical outcome needs to be an improvement in Service Quality – although this report highlights improvements to our facilities, STEM should not be seen as internally-focused, but rather it is about enhancing our customers experience in using M-I SWACO equipment, as well as ensuring the equipment is *available* and *functioning* and *reliable* when the customer requires it. Improving our workshops to Tier 1 status significantly enhances our ability to achieve this.



Top and above: The successful Dubai team.

## Some comments from the STEM Team in Dubai:

"Although it took some time and hard work, but now people know what to expect (quality, satisfaction, and reliability) when they get an asset refurbished from Dubai."

"It was a target we reached step by step. The small increment of making changes and patiently implementing them was key to not only reaching our goal but also creating a sustainable system."

Special thanks to the team: Vic Still, Gordon Thomson, Jim Gordon, Rolando Vildosola, Unnikrishnan Veettil, Ali Iqbal, Najeeb Khan and all technicians.

# Louisiana ES shop attains STEM Tier 1 status

By Tiffany Young, Quality Analyst, Scott, Louisiana

**W**hen the STEM program was first introduced, we could not fathom just how much it would greatly change the culture in our shop and how much it would come to mean to us all. For almost the first time, we had a global standard operating procedures for repairing equipment that would not vary from shop to shop, field to shop and vice versa. Due to the detailed nature of the checklists our techs are able to discover issues, or potential issues, sooner and are better equipped to handle complications as they arise. Previously, if a piece of equipment broke down, it could mean thousands of dollars in red money to the customer, and our company, which could then lead to poor reputation throughout the industry. Having the maintenance book on the units has also been a big help in evaluating the deterioration the centrifuges have received in the field.

better equipment flow and visual process control and we were anxious to see what kind of participation we would receive.

On the first day of the event, the STEM team defined all the goals that they hoped to achieve by the end of the week. As we began to lay out all of the areas for potential improvement, the workload appeared to be too overwhelming for one week and we began to doubt that we would be able to achieve Tier 2 status by the end of the year. By the second day, things outside of the original scope became apparent and we had to reassess to be sure not to miss any major details. On the third day, it seemed as if suddenly everything started to come together as more employees became involved in the process and a clear outline of action items emerged. The last two days of the event offered an incredible overhaul of the general look of the shop, new standard operating procedures and generally a fresh sense of pride in the workplace as we prepared to be moved to Tier 2 status.

Preparations for the official STEM audit were underway immediately following the close of 2011 as all employees in Scott contributed what they could to help further the results. Committees were formed in order to brainstorm how to implement best practices, input KPIs onto the STEM SharePoint site, and developing an internal audit system that would allow for audit teams to keep the shop in constant compliance with the program.

One of the main focuses of auditing internally was the implementation of the ES Quality Plan, which was developed locally to alleviate failing customer audits due to ISO procedures. The ES Quality Plan and the STEM program began to work hand in hand as a way to preserve quality as part of our main focus to our company product and our customers.

On July 24, the ES Scott Service Center unofficially became the principal Tier 1 shop in NAM and the achievement was graciously received by everyone that put in days, weeks and months of hard work.

Even though we became the NAM pilot Tier 1 shop, we are continually adopting new ideas to improve the process by documenting every direction we go in. In every SEMS customer audit, the STEM process has had 100% customer satisfaction and they have all raved about its development. Not a day goes by that we are not addressing STEM in some shape or form.



The Scott, LA workshop crew.

After completing the STEM self-audit in June 2011, we began as a Tier 4 shop. That really made us take a long hard look at the way we approached our processes. The pressure and expectation to reach Tier 2 by the end of 2011 momentously weighed down on us as we attempted to figure out the best plan of action in moving forward. As a whole, we felt like we would never attain the goals set by the end of the year but once we began to organize teams and set defined objectives everything began to fall into place. Initially, we sent 12 employees to the STEM train-the-trainer course, including operations managers, service managers, tech service engineers, shop mechanics, workshop managers and field hands. Within one month's time almost 80% of our staff was trained in STEM that included either awareness with hands-on or just awareness, which only applied to our office staff. One of our facility goals set was to have 100% staff participation in STEM no matter what their primary job function was.

A week-long event began on December 5, 2011 to see what we needed to do to reorganize our workshop, find

# Spruce Grove, Canada

By Sean Barron, ES Operations Manager Western Canada

The ES shop in Spruce Grove, Canada was awarded STEM Tier 1 status following a recent audit conducted by Eric Heath and Tony Rose. This was a remarkable achievement by the whole M-I SWACO Western Canada team, resulting in our team and facility being one of the first in the company to achieve STEM Tier 1.

The journey toward STEM tier 1 certification started slowly. Our team knew where we wanted to be, but were unsure how to get there or, for that matter, where we really were. Early in the process, we had to face some difficult realizations and had to come to understand as a team we were not doing things the right way or even always doing the best we could. We experienced a period of aligning personnel to the new culture. Safety, organization, work habits, and accountability in our work all needed to be addressed.

We started with the easy tasks: trying to make sure everyone clearly



understood their responsibilities and accountabilities, addressing training levels and our QHSE expectations. We then started removing barriers to people doing their jobs, both real and perceived. People were able to accomplish their goals, but were also accountable to those goals. People were shown how the QHSE, STEM, and other systems are all related and all affect each other. No idea for change was rejected out-of-hand and we attempted to remove cost as a barrier. Workplace attitude improved as the equipment and shop environment made steady progress. People are now taking newfound pride in their work and the M-I SWACO name and equipment. We are starting to feel empowered and making the system our own.

By following STEM guidelines, we have started putting out a better product. Unplanned service call levels have started to drop, as have complaints, both internal and external. People are now vested, realizing that while they are accountable, they are also protected by committing to the system. We have also started to modify the STEM checklists for our non-STEM equipment, improving those maintenance standards as well in a concrete auditable way. Because we are the only STEM Tier 1 shop in our region, we are performing all advanced shop maintenance through the Spruce Grove facility in support of our other facilities.



Above: The Spruce Grove, Western Canada team accept their STEM Tier 1 award from Tony Clarke, STEM Champion. Left: The team works through the maintenance checklist.

While still learning and early in the process, due to STEM and the SharePoint site, we now have a better understanding of issues we come across and the support available to us. Because we have confidence in the product we are sending to the field, we have, as a team, become more accountable and solution-focused, rather than defensive when problems arise.

STEM has helped bring a real measure of consistency to our overall operation and helped other aspects of our desired culture to gain traction. STEM has been integral to changing our overall culture. We are not only beginning to see the benefits of improved maintenance procedures such as less R&M cost, less red money, etc., we are also starting to see more buy-in to our QHSE system leading to a safer workplace.

We have begun to understand that STEM is not about the facility; rather it is about the product we deliver. STEM ensures that product is consistent and correct. We know what we are putting out the door and have faith in its ability to perform. This achievement allows the Spruce Grove shop to be the benchmark for the other facilities in the area, and will demonstrate the standard strived for throughout Western Canada.

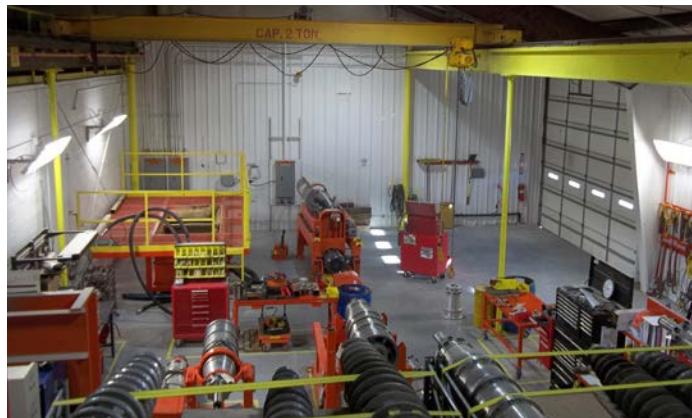
# Casper, Wyoming ES Facility Achieves STEM Tier 1

By Josh Patterson, Operations Manager, Casper, WY

The Casper WY, ES Facility (NAM) was just recently audited and awarded STEM Tier 1. The audit was conducted by Global STEM Manager Tony Clarke. This was a remarkable achievement by the whole M-I SWACO staff and team of the Casper facility.

"The STEM Tier 1 award for our Casper facility is a remarkable achievement and the lynch pin to delivering "world class" service," said Stan Jepsen, US Land VP. "Tier 1 is a differentiator for M-I SWACO as we hold ourselves to a higher standard with tangible benefits for our clients. Very few

Right: The Casper, WY STEM Tier 1 workshop. Below: The Casper, WY ES Facility team with Tony Clarke, celebrating their achievement of STEM Tier 1 status.



facilities have reached this level proficiency and I take pride in congratulating the Casper team."

Because the Casper facility is the central service center for the Rockies Region, it was an excellent choice in being the first STEM Tier 1 facility in the region. This significant achievement allows the Casper facility to be the model for the other facilities in the area, and will unmistakably exhibit the standard that all facilities should strive to achieve. Casper has always had a reputation for producing top quality equipment, great service, and an outstanding safety record having not had a loss time accident since December 2006.

The STEM program has been identified as a major initiative and fully supported by the corporate executive staff and all management. STEM is intended to provide all ES personnel with comprehensive processes and procedures governing the maintenance, repair and storage of M-I SWACO assets. Through the implementation and adherence to global standards quality assurance levels will increase, customers non-productive time will decrease, and M-I SWACO will improve its overall ROA performance.

Casper has continually been at the forefront of introducing new technology in the field and providing the training for maintenance, which allows for proper maintenance and repair for all equipment as per all STEM requirements.

With the rollout of STEM, Casper has implemented the training to all employees from the start, working with STEM champions and training local champions to ensure all employees are trained properly both in the classroom and with hands on training with equipment. Casper has put STEM as a very high priority, ensuring all employees understand the importance of proper maintenance on our equipment.

STEM has been incorporated into our new hire training to make sure all new employees are trained in STEM and understand from the start what M-I SWACO expects from its employees in service and maintenance of our equipment. STEM is pressed and monitored in both the facility shop and in the field to make sure it is followed providing our customers with high quality equipment and services. The STEM process assigns responsibility and accountability to all employees for our equipment, which in turn provides our customers the best performing equipment and service, raising their overall satisfaction and increasing the M-I SWACO share of the market.

Becoming a Tier 1 facility has many challenges to it but if all involved can buy into the idea and process it is proven that STEM benefits not only M-I SWACO but its customers.

# Catu Shop Achieves Tier 1 Status

By Felipe Liporace, LAM ES Operations Support Manager

Brazil could not be happier to have the Catu facility being the first one in Latin America (LAM) to achieve Tier 1 status. Right before the initiative rolled out in Q3 2011, the LAM management visited several facilities in the region and Catu was perceived one of the most problematic shops. Even before this visit the ES Management in Brazil and Local Catu Management were already implementing changes in personnel and infrastructure when the shop became 80% dedicated to ES, compared to previous 50/50 with DS in the beginning of 2011.

One year after that visit, everyone in Catu, Brazil and LAM are proud to receive

people in their shop and show all the improvements that were done in the shop and the change is so huge that looks like the ancient phoenix coming back from the ashes.

Early in 2011, the LAM management visited Catu and saw several improvement opportunities, leading to a commitment to lead ES shops in excellence in LAM.

The STEM initiative launch later in 2011 was the perfect opportunity to get the proper standards and implement properly right from the start. LAM designated Felipe Liporace, ES tech support manager, as STEM Champion and along with LAM VP John Oliver, ES LAM Director Barry Simpson and the local ES managers, they developed a plan to achieve the desired excellence.

The first path was training. LAM needed all the people involved in the equipment maintenance to speak the same language and have the same standard so they can move ahead on implementing the procedures in the shops and in the field operations.

Second important path was to coordinate audits in



Above: The Catu team after receiving the STEM Tier 1 Award. Left: Mauro Alvarenga (ES Maintenance Engineer) Representing the Catu Team receiving the plaque from John Oliver (LAM VP) and Alcides Alcoba (ES Brazil Manager).



all countries to review and develop the commitment with each country management. 2011 we had a total of 4 self-audits to keep a good track of how we were moving towards the compliance with each Tier requirement.

LAM had targeted three shops to be Tier 1 by the end of 2012 – the first achieved was Catu in August and Mosquera, Colombia, and Coca, Ecuador are scheduled for audit by Tony Clarke. The Santa Cruz, Bolivia shop is working hard to achieve Tier 1 in 2012 too.

## Critical Success Factors:

- People commitment – in all levels in the company
- Proper training
- Working a step at a time and focusing on bits of the initiative to achieve the big final result
- Sharing responsibility – everyone knows what they can do to be better
- Audits – continually self-audit so that you know where you are at and clarify what needs to be done.
- External audits with reports and action plans

Catu is the first LAM facility achieving Tier 1 in LAM. We are targeting 4 Tier 1 by the end of 2012. Some countries are still struggling to improve due to different factors, but the example set by other countries and the exchange of information will help all countries to achieve Tier 2 by the end of the year.

# M-I SWACO base in Ecuador: The beginning of a challenge

By Gabriel Calderón, Operations Manager, ES, Quito, Ecuador

**S**TEM – Standard Equipment Maintenance Program, is the most impacting program in keeping and repairing our equipment all over the world.

In September, the M-I SWACO operations base located in the Amazonian river port of Francisco de Orellana – also known as Coca – in Ecuador, reached the Tier 1 classification in the STEM program, becoming the sixth M-I SWACO base in the world, and the second in LAM to achieve this recognition.

Even though STEM was recently implemented, the discipline and technical effort of the people dedicated to the project started long ago. We firmly believe that our operational base is the people that work there, but also the people that worked there in the past, leaving their knowledge and human quality. To them, certainly reading this article and remembering episodes lived in this little town Ecuadorian Amazon jungle, our best regards and our congratulations; this honor is also yours.

The implementation of project like this is born in the heart of the people. Managers, maintenance technicians and operators at locations should be convinced of the results that the program will deliver. It worth mentioning that the STEM implementation not only happen within the ES boundaries; the good practices and system recommendations flourish immediately across the entire organization, and the fruits became the advertisement motivated DS and

WP to take ownership of the program as well.

We can now assure that STEM is implemented one hundred percent in our base of operations.

What does STEM give us?

**STEM leaves safety** – equipment kept with good maintenance procedures are safe equipment to operate in our client's locations.

**STEM leaves profit** – a piece of equipment that always run as expected saves unexpected costs in spare parts and logistics.

**STEM leaves confidence to our clients** – fewer unforeseen stops, fewer logistical issues, less NPT, higher trust in our services, better reputation for M-I SWACO.

**STEM leaves motivation and knowledge** – daily practices of STEM processes turn our people into better technicians and better operators.



Top: The team worked together on the STEM principles to ensure they would attain the STEM Tier 1. Above: Throughout the shop, the principles of workshop organization, equipment flow and visual process control were implemented.

In short: STEM delivers technical differentiation from our competitors.

STEM is the first requirement to achieve excellence in an M-I SWACO Base. Reaching Tier 1 for us is not the end of the way. This is the Continuous Improvement (CI) starting point that forces us to establish new standards in the industry.

# Tier 1 Mosquera Base – Colombia

By Alejandro Prieto, ES Operations Manager, Bogota, Colombia

In October, Tony Clarke, global STEM implementation manager, audited the Mosquera, Colombia base and certified it STEM Tier 1.

M-I SWACO Environmental Solutions (ES) has a significant contribution in the oil field activity in Colombia, thus the Mosquera base was created outside Bogota to support 34 rigs with solid control operations, and two with water treatment for the entire country. M-I SWACO Colombia has the largest fleet of equipment in Latin America (LAM), which makes the commitment of the Mosquera base critical to provide technical and mechanical support, as well as procurement and logistics to all rigs.

In September 2011, the first information regarding STEM was provided, and a self audit was performed positioning the Mosquera base in Tier 3. Subsequently, a series of training classes and audits were provided by Felipe Liporace, Andrea

Alba, Tony Clarke, and Octavio Espinoza, laying the foundation of a challenging plan that was achieved successfully and on time to accomplish the Tier 1 level before the end of 2012.

One of the first goals was to apply the principles of workshop organization, equipment flow and visual process control. This was achieved by removing obsolete equipment and scrap, reclaiming areas for better utilization, cleaning and significantly improving the visual appeal of the base.

Next on the list was the construction of a quarantine area with information boards with the base layout and PPE available, design of better pedestrian ways for employees and visitors, as well as the placement of signals including a welcoming board showing number of days without accidents in the base.

In addition, all the different work areas were identified, creating boards showing the layout, ideal state of organization, and champion for each area. Shadow boards were also implemented as well as wheel carts for tools and equipment.

The work place organization and visual controls were put into practice in tandem with the maintenance procedures and documentation required by STEM.



Above: The Mosquera workshop team.  
Left: Alejandro Prieto, left, with Country Manager Olegario Angarita.

The biggest challenge during this process was to change bad habits, poor practices, and improper procedures deeply embedded in the employees' routines to be able to fully embrace STEM culture. Campaigns were executed such as STEM education, regular housekeeping, waste management classes, SIPP programs, safety training, and STEM audits and follow ups, involving at all personnel including the active support from the QHSE and medical, as well as local management.

There is a higher level of commitment now that Tier 1 has been achieved to maintain this level of excellence, which will require hard work, innovation, creating strategies with the support of all personnel involved who provides a significant number of ideas for continuous improvement in all the processes and procedures.

Field personnel is required to continue supporting the STEM initiative by submitting the utilization reports on time, actively using QUEST to report issues. This will help us find solutions to continuously improve our equipment, like the pilot project initiated by the Mosquera base to improve gear box failure. This program has shown excellent results and has already been submitted to the Reliability and Engineering groups in Houston and Florence.

Thanks to the good practices guaranteed by using the STEM program, high standards have been set to organize shops and follow standard practices that will result in better performance and quality of M-I SWACO equipment for our clients generating the confidence and support necessary to strength even more our presence in the industry.

# Celle, Germany

By Greg Clemons, RTSM CEU

**I**s STEM hard to implement and maintain, to understand and adjust to, to wrap our heads around a new way of thinking? The simple answer would be yes!

In a place where the status quo was the way to do things implementing STEM was a major challenge, there were a lot of (why's) asked and a lot of push back from the (experienced professionals), myself included.

However, once STEM was properly rolled out and instructions in place things began to come together. With the guidance of Brian Jamieson and the dedication of the ES staff and workshop leaders such as Arno Kuchar, Bjoern Gromoll and Bjoern Froehlich, things in Celle started to come together. Attitudes started to change and maintenance and engineering began to understand the purpose and benefits of STEM.

Beginning in March, the Celle team underwent a massive transition (yes, sometimes it was like pulling teeth). Through the constant oversight of Bjoern Burwig and Achim Schulz, a STEM structure started to form. Meetings and seminars were given almost with an

atmosphere of generals getting troops ready to deploy. You could see the attitudes changing from one moment to the other as the light bulb came on.

By August, the troops were ready for anything and that's exactly what they got after months of preparation, of falling down, getting up, dusting off, they were hungry for Tier 1. As the STEM team came to Celle, there was an atmosphere of reserved confidence. The team in Celle knew they had done what was needed but...there is always a 'but.'

Brian Jamieson and his STEM team came down like an Oklahoma tornado, asking hard questions, turning every stone, looking for anything out of compliance; however, the Celle group was prepared. Through four grueling days of inspection, meetings until late hours, and hard work the coveted Tier 1 status was handed to Celle. It was like the cool breeze that comes after the storm. Smiles and handshakes all around.

I wondered if Celle would be able to maintain the Tier 1 or would we slip back into the status quo. To my delight, I find Celle is not only maintaining their certification, but they are hungry to expand. Celle has incorporated a mobile STEM operation that

is out every day of the week with STEM maintenance personnel going rig to rig checking up on equipment and teaching onsite personnel about the benefits of STEM.

Customers are coming on board as project engineers Bjoern Burwig and Patric Abel explain how STEM works and the benefits. STEM has hit Germany with full force and with the dedicated ES team in place STEM is here to stay and to grow!



Top: The Celle, Germany STEM team. Above: The mobile STEM vehicle used to check on rig equipment.

# Singapore STEM

By David Wilson, ES Manager Asia, Petaling Jaya, Malaysia

The ES workshop in Singapore was awarded STEM Tier 1 status following an audit conducted by Gordon Thomson, STEM manager ASA/MEA and Brian Hunter, VP ES Drilling.

The Singapore ES workshop is the central equipment maintenance hub

in ASA for major repairs, overhaul and upgrades of equipment. The workshop has operated for many years and manages a significant volume of equipment each month. When STEM was introduced, the Singapore workshop assumed it would easily make Tier 1 status; however, after the initial self-audit, there was still a huge amount of work to do in both processes and procedures.

The journey towards Tier 1 status started with a STEM event, led by the ASA CI Champion Max Yeh. The best way to learn the concepts of workshop organization, equipment flow and visual process control as well as the implementation process is through practical training; this is why the Singapore event was also used as an excellent opportunity to train other operations and workshop personnel in ASA.

The week started with STEM training from Max and Gordon with at least one person from each of the ASA shops. This provided the participants with a theoretical understanding of the process and the plan for the week ahead. The rest of the week followed the processes of "sort and clean the workshop," "set in order," "shine," followed by "sustain" to establish some rules and policies.

STEM is important because it gives our people the right tools, procedures, and processes to carry out maintenance and repair to a standard, which in turn leads improved equipment flow, efficiency, reliability, and quality. The

adoption of new STEM documentation and the implementation of SOPs and monthly checklists guarantee that each asset undergoes a rigorous and consistent repair process. Workshop personnel are extremely proud of their achievement, and that pride manifests in the quality of workmanship they produce.

It is now important that we maintain the momentum to sustain the Tier status in Singapore, and use what was learned to implement in all of the other ASA ES workshops. Having a service facility of this quality is something that customers can visit to see the well-organized workplace, and fully serviced equipment, green tagged, and ready for the field. A major milestone has been set for passing audits and gaining ISO approval standards.

Special thanks to the team of Mike Ritchie, operations manager; Roy Catto, project service supervisor; Gordon Thomson; Max Yeh;

Irene Song, ES ASA purchasing & logistics manager; Lee Siang Wah, ES maintenance manager; Budi Sugianto, workshop supervisor; Mahdar Mahdar, project engineer; Sutas Longseng, thailand field specialist; Olarn Suwannaird, thailand FSM; Sun Fei, operations co-ordinator South China Operations; Pang Jun, warehouse supervisor Bohai Bay; Gavin Green, consultant engineer; Hisham Awang Su, warehouse supervisor; Wong Kim Sang, ATC supervisor; Mihai Rotariu, solids control engineer; Razvan-Marian Milea, solids control engineer; David Lim Boon Chong, ASA screens & capital sales supply chain; Syed Fazle Rumi, STEM document controller; Tan Hock Heng, warehouse supervisor; Richard Tan, solids control engineer; Naing Aung Aung Thet, welder specialist; Noor Azhar, solids control engineer.

And thanks also to the ES workshop team for their support and hard work during the week of the event.



Above: The Singapore ES workshop crew and management during Brian Hunter's visit.  
Right: STEM Manager ASA/MEA Gordon Thomson, left, presenting the Tier 1 status award to Operations Manager Mike Ritchie, right.



# Aberdeen Minto Drive

By Alan Hendry, Facilities Manager

The ES Facility in Minto Drive Aberdeen began its STEM journey on the Aug. 25, 2011 when all the EAF Workshop Supervisors met in Aberdeen to be trained in the STEM process by Tony Clarke and Eric Heath. After the training, STEM champions were identified and charged with implementing STEM in their areas.

The initial challenge for ES UK was to train one hundred and twenty staff in STEM process by the end of the year 2011; this was achieved by a combination of hands on training and a training course uploaded to e-campus.

During the on-going training we set about implementing the Tier 1 compliance standards which are; QHSE compliance, work place organisation, work cells, inventory management, standard operating procedures, segregated areas, STEM shop logs, asset transfer process, tracking KPI's and the implementation and use of STEM materials such as document boxes, field service guides & checklists, 360° inspection guides, etc.

The Minto facility was awarded Tier 1 status on the Sept. 4 and since then we have had two client site visits as part of their tendering process and to have each visiting group comment on the high standards regards



The proud Aberdeen shop crew with their STEM Tier 1 award. From left to right, back row are Macie Kubiak, service technician; Alan Hendry, facilities manager; David Wilson, workshop supervisor; Luke Morris, service technician. From Left to Right Front Row are Jamie Murray, trainee; Alex Farquhar, workshop manager; Callum Grieg, service technician.

QHSE, shop layout, visuals, organisation, work flows and cleanliness of the workshop and facilities is gratifying to all the Minto staff who have worked hard to make the improvements and demonstrates the power of the STEM concept of being seen as number one for service quality.

We now have a global systematic approach to maintenance with well-defined periodic requirements and detailed documentation. As STEM embraces the concepts of workshop organization, equipment flow and

visual process control, this makes maintenance required for a machine visual, clear and easy to pick up by both new and existing personnel. Increasing our service quality benefits all our customers and staff as the more reliable the equipment performs the less breakdowns and non-productive time is experienced driving down maintenance costs and extending the cost effective life of our products.

We have met the challenge of attaining STEM Tier 1 status. We now need to meet the challenge of maintaining this status and indeed striving to continually improve service quality to our internal and external customers.



A well-organized bench proves the benefits of STEM.

# Trade Shows and Conferences

## SPE

The 2012 Society of Petroleum Engineers (SPE) Annual Technical Conference and Exhibition was held at the Henry B.



The M-I SWACO SPE/ATCE booth.

Gonzalez Convention Center in San Antonio, Texas on October 8–10. The event, which saw its highest attendance ever with 11,095 attendees, focused largely on unconventional technology. The M-I SWACO booth remained busy throughout the exhibition, with key unconventional technologies being featured, such as the new RHADIANT<sup>†</sup> ultra-high temperature non-aqueous drilling fluid, which was officially launched at the show. A press release was sent out during the show and an article on the RHADIANT fluid in the SPE Show Daily.

## NO-DIG, MOSCOW



The M-I SWACO NO-DIG MOSCOW booth and personnel.

The M-I SWACO HDD, Mining and Waterwell Group participated in NO-DIG MOSCOW exhibition June 5–8. NO-DIG MOSCOW is the leading trade fair and conference on trenchless technologies in Russia, CIS and Baltic countries. It is the significant regional forum for specialists, manufacturers and vendors, service providers and customers in this sector.

M-I SWACO had a booth among 112 other exhibitors. In addition, HDD Russian Group member presented his report called "M-I SWACO innovations in HDD drilling fluids usage" at the NO-DIG Moscow Conference "Trenchless Technologies For Underground Infrastructure Construction and Rehabilitation," June 5–6.

Since last summer product range was expanded by reagents, presented during the exhibition:

PLATINUM PAC UL<sup>†</sup>, POLYPLUS LV<sup>†</sup>, PLATINUM ROD EASE<sup>†</sup>, HIBTROL EHV<sup>†</sup>, MAX BORE EH<sup>†</sup>.

## OIL & GAS EXHIBITION 2012, UKRAINE



The M-I Ukraine booth and personnel.

The first M-I SWACO projects in the Ukraine were launched in 1997 and since 2005, M-I SWACO has operated as M-I Ukraine LLC. M-I Ukraine mostly specializes in drilling fluids engineering and solids control equipment sales and rent.

M-I Ukraine hosted a stand on the Ukraine exhibition Oil and Gas 2012, The 16th International Trade Fair of oil and gas industry. Oil & Gas 2012 took place Nov. 23–25 in Kiev. The international oil and gas industry Forum Oil & Gas is the key branch event in the country. Around 150 exhibitors presented their latest tools and technologies. This event helped us not only to strengthen old business relations, but to find new business contacts for further deals and effective cooperation with Russian, CIS and foreign country partners.

Customers showed interest in MONGOOSE PRO<sup>†</sup> shaker, which was demonstrated on the booth. Schlumberger, M-I SWACO and Smith Bits had neighboring stands, showing the companies' integration of products and services.

## Q3 2012 SHOWS

- Oct. 16–17, GeoPower, Turkey
- Oct. 17, Shell Chemicals Application Expo/Fair, Port Harcourt, Nigeria
- Oct. 22–24, APOGCE (PT with SLB), Perth, Australia
- Nov. 6, Schlumberger Technology Forum, The Hague, Netherlands
- Nov. 7, Chevron Technology Day, Thailand
- Nov. 11–14, ADIPEC, Abu Dhabi, UAE
- Nov. 26–29, Technology Exchange/Interchange, New Orleans, LA
- Nov. 27–29, Shale Gas World, Warsaw, Poland
- Nov. 27–30, OSEA (PT), Singapore
- Dec. 4–5, NGWA (HDD), Las Vegas, NV

## Alpine GIS and Mud Plant celebrate over 10 Years without a Recordable Injury

Both the M-I SWACO Alpine GIS and Mud Plant, and Schlumberger cementers, working at the Alpine Project for ConocoPhillips Alaska Inc. have recorded over 10 years without a recordable injury. This milestone reflects the commitment all M-I SWACO employees working at Alpine have towards the QHSE culture, and the strong QHSE support and mentorship provided by ConocoPhillips Alaska. Making this milestone even more outstanding is the additional hazards faced daily by the crews working in the extremely harsh arctic environment and remote location of the Alpine Project.



Front row, left to right are Saet Chanta, ES operator; James Winter, ES lead operator; Charlton Ferrera, ES operator; Chris Sittlow, ES lead operator; Jason Lawson, ES personnel manager; Randy Smith, NS QHSE advisor; John Murphy, ConocoPhillips account manager. Middle row: Joe Jackson, SLB cementer; Wayne Woodham, Alpine IFE; Austin Hudson, warehouse utility; Sara Neuschwander, warehouse utility; Jay Bianco, ES field Supervisor; Lonnie Wood, Alpine ES project manager; Clinton Montague, drilling fluids specialist. Back row: John Parret, mud plant supervisor; Dave Johnson, ES operator.



Front row, left to right are Kemp Webb, AK engineering manager; Scott Sand, mud plant supervisor; Larry Schachle, ES supervisor; Rod Bagot, ES Supervisor; Chris Atwell, ES operator; Robert Hanson, drilling fluid specialist. Middle row: Orlando Caro, warehouse utility, Jeremy Chadwell, AK QHSE manager; Ray Figueroa, AK regional manager, Lonnie Wood, Alpine ES project manager, Ricky Bostick, ES operator; Brennan Mischenko, ES field supervisor; Rob Heintzman, ES lead Operator; Chris Ornt, Alpine project engineer. Back row: Kevin Daems, NS QHSE advisor; Rob Reinhardt, Alpine IFE; Mike Dawkins, warehouse utility.

## SWECO named one of the “Best Places to Work in Cincinnati”

The Cincinnati Enquirer newspaper listed the M-I SWACO SWECO plant in Florence, KY as one of the “Best Places to Work in Greater Cincinnati and Northern Kentucky.” Florence, KY is just across the Ohio River from Cincinnati, OH. The traits listed included conviction by employees that their work is valued and their ideas sought out, confidence that top managers are leading their businesses in the right direction, and commitment from every level to finding better ways of producing products and delivering service.

The workers submitted to a survey and winners included the SWECO plant among Fifth Third Bank and Gorilla Glue.

There are two complimenting business units operating out of facility. The SWECO business unit makes a wide range of equipment for particle separation and size reduction. SWECO products are used in chemical processing, food and beverage, pharmaceuticals, pulp, plastics and environmental compliance applications.

The M-I SWACO business unit specializes in producing



Above left: Matthew Kennedy works on ES equipment. Above right: Brian Mueller works on a centrifuge. Left: The Florence, KY facility.

equipment for controlling drilling operations and separating drilling fluids for reuse. Our technologies are critical to the effective management of fluids at the well site. Our mission is to meet the challenges of an ever-changing world market by seeking innovative new technologies both inside and outside our organization and to engineer and manufacture equipment that provides quality, value and dependability.

### Magcobar mud engineer earns STOP card of the week

Zhang Yang, Magcobar mud engineer on a ConocoPhillips rig in China's Bohai Bay. There was a lot of crude oil returned while washing sand that was splashed by shale shaker. To prevent crude oil from polluting environment, Yang used tarps to surround the area. He followed up at upcoming safety meetings with a discussion of good practices in the daily works to prevent environment damage.

Zhang Yang accepting a SONY Tablet in return for his STOP card.



# Meet, learn, play...the Environmental Solutions Olympics

By Narmada Guruswamy

The Environmental Solutions (ES) division of M-I SWACO held two offshore seminars for their offshore engineers this autumn. Organizers Peter MacIntosh and Lisbeth Hoch Lode wanted this to be a team-building event with opportunities for personnel to mingle, while they were briefed on happenings onshore. The two events, held at Stavanger Quality Airport Hotel, Sola, attracted 104 of the 121 offshore engineers.

ES Area Manager Henning Fattnes kicked off proceedings with a segment update, including growth and jobs, and introduced everyone to the office staff. Product line managers then presented details of current and new product lines. Project leaders followed, introducing themselves and identifying the rigs they run.

That evening, event company *Frisk Luft* organised the 'ES Olympics.' There were six different activities, all tremendous fun, great for teambuilding and they had everyone competing hard to win.

Many of the engineers hadn't seen their colleagues in quite a while. Several others had worked together, or had worked for a project leader but had never met face to

face. These events allowed them to put a face to the name, get to know one another better and receive updates on all the latest developments.

It was a win-win situation, regardless of who won the ES Olympics!



Teams competing in one of the teambuilding games.

## Journey Management Call Center reduces preventable crashes



West Coast District Manager Reggie Stanfield calls the Journey Management Center to let them know that his trip is complete.

In a combined effort to reduce motor vehicle crashes, West Coast District Drilling Solutions and Environmental Solutions rolled out a plan that included utilizing the Fort Morgan Journey Management Center.

For any trip that is over 30 miles, the driver contacts the JMC and the call center sets up the trip in eJourney. The call center asks questions about the weather conditions, the route, the driving risks and hours of rest to help identify fatigue management issues. The driver contacts the JMC every two hours and at the end of the trip.

Management can monitor trips in eJourney and the JMC sends a recap report daily. Since May, the Fort Morgan Journey Management Center has created and managed over 2,000 trips for the West Coast District. The number of preventable crashes has been reduced and the JMC has not had a crash on a trip that they managed.

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The M-I SWACO business unit specializes in producing equipment for controlling drilling operations and separating drilling fluids for reuse.



One of the liquid mud plants.



Staff of the plant.

# Tech Roll Call

## Schlumberger CEO Paal Kibsgaard attends grand opening of LMP in Luanda, Angola

By Kurt Nielsen, M-I SWACO EAF Marketing Manager, La Defense, France

**O**n Sept. 26, a delegation led by Paal Kibsgaard, Schlumberger CEO inaugurated the brand new M-I SWACO deepwater equipped liquid mud plant (LMP) in Angola. The delegation included Sherif Foda, Schlumberger Europe and Africa Area president; Gerard Martellozo, senior advisor to the CEO; David Viela, Schlumberger Angola geomarket manager; Bill Heiam, Schlumberger Angola geomarket sales and marketing manager; Marcos Amud, Schlumberger Angola geomarket operations director and other members of the geomarket staff.

Located in the heart of SONILS Oilfield Center in Luanda, the facility has 60,000 bbl of operating capacity, divided into 25,000 bbl of base oil, 22,800 bbl of oil-base mud, 11,400 bbl of brine storage and the remaining capacity of oil-base mud and brine mixing capacity.

This LMP is one of the first plants to be developed and built by the



Schlumberger CEO Paal Kibsgaard cuts the ribbon to officially open the M-I SWACO deepwater equipped liquid mud plant in Luanda, Angola.



Kibsgaard, left, with Sherif Foda, center, and David Viela, right, next to the plaque commemorating Kibsgaard's visit.

Global Facilities Group to their deep-water standard specification.

The LMP was built as part of a tender award for BP and has state of the art capabilities, with dedicated shearing unit, solids control processing area and a full capability technical lab support included in the design. The design has been developed to enhance safety by reducing exposure from working at height with a dedicated walkway along the tank tops and additional features included to minimize manual handling in the warehouse and mix area.

With phase one complete, the LMP is now operational servicing the BP deepwater work offshore Angola and soon many other operators will begin operating from the plant. With the opening of the facility M-I Swaco and Schlumberger are poised for growth in the Luanda market and are set to capitalise on the already extensive footprint we have in Angola.

### Joint M-I SWACO and Schlumberger project helps Kingdom of Jordan

Amro Heikal, M-I SWACO senior project engineer and Yasmine Nassim, Schlumberger Jordan IMP project manager, visited Nabors rig #144 in Risha field development project for BP in the Kingdom of Jordan. This is the first well in this important gas field development and the success of this project will be a vital piece in the Kingdom's development as the small Middle Eastern country has limited energy resources. The photo

All Schlumberger segments working as one team in this project. Team members gather with Yasmine Nassim, center, and Amro Heikal to her right.



# First FloThru Application in the Middle East a success

**A**n operator decided to utilize an open-hole barefoot completion instead of the planned cased and perforated completion. The well was drilled to TD with a conventional drilling fluid that was not customized for barefoot completion and significant formation damage was observed when the well was flowed back. Marginal production was obtained.

The causes for the production impairment was surmised to be a combination of the use of a drilling fluid not customized for barefoot completion with inappropriate displacement and completion practices. The operator requested that M-I SWACO Pakistan team propose a reservoir drilling fluid (RDF) and completion fluids plan to drill and complete the next well with OH completion. The RDF filter cake had to be easily cleaned up without the need for a breaker system since this would require a coil tubing unit for proper placement and would impact majorly the costs associated with the operation.

The M-I SWACO Wellbore Productivity (WP) group from Houston and Dubai worked together with Pakistan operations team to commission and evaluate in a short time the best fluid selection for the upcoming well. Because of the

well profile, completion type and limitations, M-I SWACO proprietary system FloThru<sup>†</sup> water-based RDF was considered the best candidate to drill and complete the reservoir section. The FloThru system is designed with enhanced flowback capabilities that eliminate the need for a chemical cleanup treatment, while providing higher return permeability and lower flow-initiation pressures.

The horizontal section was drilled successfully to TD on Oct. 22 and after completion, the well was put in production mode. Entire wellbore cleanup was achieved after only one hour of flowing back; this was evidenced by a pure crude oil production at a rate that exceeded the customer's expectation. According to the operator, the execution and performance of the entire barefoot completion until production phase was flawless, with no issues and zero non-productive time (NPT). As a result, the operator decided to continue using the FloThru system for their future barefoot completion projects.

This application of the FLOTHRU water-based reservoir drilling fluid was the first job in the Middle East using the proprietary product.

## M-I SWACO expands in Hammerfest, Norway

**I**ncreased activity in the Barents Sea has led M-I SWACO to establish tailor-made base facilities in Hammerfest, Norway. M-I SWACO has been delivering products and services to drilling operations in the Barents Sea since 1982. With the growing Barents Sea market, including upcoming projects such as Skrugard, Goliat and Norvarg, the company saw the need to set up its own facilities.

The new M-I SWACO supply base was opened in September, at the Polarbase site in Rypefjord. It features an indoor and outdoor warehouse, mixing hall, pump room, and 12 storage tanks with a total storage capacity of 97,468 ft<sup>3</sup> (2,760 m<sup>3</sup>). The facility complies with the strict environmental requirements, including a ring wall around the tanks, and filters on the powder storage units and mixing plant.

Inside the control room the storage tanks are continually monitored on an internet based system. Warehouse Manager Ørjan Hoff was the first permanent employee, and has overseen the building process. Project Leader and Warehouse Operator Aleksander Jakobssen Ring recently joined, and more colleagues will be hired in as needed.

This facility is the eighth M-I SWACO base to be established along the Norwegian coast. The others are at Risavika, Tananger, Dusavik, Aagtnes, Mongstad, Florø,



Tanks are lifted in to place in January 2012.

Kristiansund, and Sandnessjøen. In addition, M-I SWACO has a laboratory for Statoil at the Stureterminalen base outside Bergen.

The Hammerfest facility was officially opened on Sept. 27 by the County Governor of Finnmark Gunnar Kjønnøy, witnessed by close to 50 guests at a ceremony held in the warehouse. Hammerfest is a very small community with only 10,000 inhabitants.

# Bolivian Chamber of Hydrocarbons recognizes M-I SWACO nanotechnology paper

**A**t the 5th International Congress Bolivia Gas Energia, M-I SWACO received a prize from Camara Boliviana deHidrocarburos (Bolivian Chamber of Hydrocarbons) as the best technology presented.

The Bolivian magazine *Petroleo y Gas* reserved one full page for mentioning the prize, showing the president of CBH handing the prize to the presenter, Carlos Cisneros Danilo, the MI SWACO Project Engineer co-authored the paper, along with Gabe Manescu, Peru DS operations manager; Jim Friedheim, corporate director of fluids research and development; and Quan Guo,



senior manager of Engineering Technical Service.

The paper presented a nanotechnology enhanced water-based drilling fluid and the associated test results design for shale play drilling. What was interesting is that this new water-based drilling fluid can be a potential solution for preventing wellbore instability while drilling fissile shale formations, such as Los Monos in Bolivia and Argentina, Napa in Ecuador, and Chonta in Peru.

CBHE president giving the award for Best Technical work to Carlos Cisneros, M-I SWACO Bolivia Project Engineer and Nano-Technology Enhanced Drilling Fluid for Fissile Shale presenter.

## DIPRO fluid starting to break into the Arabian market

A field trial for a 102 pcf (13.6 ppg) DIPRO<sup>†</sup> RDF and CaCl<sub>2</sub>-CaBr<sub>2</sub> system was successfully completed by M-I SWACO for in a major client in Saudi Arabia operations.

High density divalent brine based reservoir fluids have represented a fluid management challenge in some operational areas for Saudi Aramco. Polymer breakdown, chronic solid settling, foaming and erratic fluid properties have been common hurdles in those applications. The client's technical department and M-I SWACO have worked on viable technical solutions for these situations, targeting the use of stable and fit to purpose fluid designs. The DIPRO<sup>†</sup> water-based system was evaluated at laboratory and identified as a suitable option. Global Technical Support group assigned Technical Service Engineer Paulo Pauferro to provide field support in this application.

The DIPRO system was formulated with a CaCl<sub>2</sub>/CaBr<sub>2</sub> fluid as base brine. The system utilizes a single polymer component to produce an outstanding suspension quality characterized by a high low-shear rate viscosity and a low high-shear rate viscosity.

The DIPRO system was well applied during the drilling phase from 6,518 to 9,388 ft (1,987 to 2,861 m) in a 6-1/8 in section. Initially, the system was prepared in the rig site and displaced to the well before milling. The DIPRO system proved to be stable and easy to manage throughout the section, allowing an efficient drilling operation and data acquisition. Once reached section TD at 9,388 ft (2,861 m), the string got stuck due to mechanical reasons. The drill pipe was freed after multiple open hole operations including pumping surfactants, acid, clear brine and tandem pills. A final condition trip was performed without any major restriction and displaced the DIPRO fluid to the completion brine.

The DIPRO fluid complied with all set KPIs as per client requirements showing outstanding stability even while pumping acid, surfactants and clear brine. Thus, the fluid was stable or easy to reestablish its properties. The remaining DIPRO volume was recovered and tried to use in two subsequent wells where the applications were aborted due to massive losses.

The client has currently approved the DIPRO system, and it would be added to the portfolio of client solutions for reservoir drilling and high density applications.

Dr. Sherif El Gammal, M-I SWACO country manager, has highlighted the steady support to client operations in country introducing fit to purpose systems and technologies to the local operation. The DIPRO system has been recognized as an enabling tool for currently challenging high density reservoir applications within the client technical community.

# Well Scavenger tool helps save two dedicated trips during completion offshore Brunei

While reviewing plans for a completion off the coast of Brunei for a major operator, the completion team was challenged to reduce rig time. Dedicated runs were initially planned to deburr a perforation interval, then perform a cleanup down to the GT plug and finally retrieve the GT plug. Three runs to perform this part of the operation was a challenge that the operator wanted to overcome; to do so they came to M-I SWACO Specialized Tools group to get recommendations. Due to complications and limitations necessary while retrieving the GT plug, an exhaustive review of the operation was performed. Once this was complete, the recommendation was made to perform all of this in one run.

The M-I SWACO Specialized Tools group recommended a bottom hole assembly consisting of the GT plug retrieval tool, the 5-3/8 in Well Scavenger<sup>†</sup> tool, two MAGNOSWEEP<sup>†</sup> II magnet tools, a Ridge Back<sup>†</sup> Burr Mill, a Well Patroller<sup>†</sup> tool and a Well Commander<sup>†</sup> tool with a Bypass Ball Catcher in the 7 in tie back casing. This tool configuration allowed deburring of the perforations, cleanup of debris above the GT plug as well as retrieval of the plug in one run.

After running in hole to a depth of 16,942 ft (5,164 m), which placed the burr mill at the top of the perforation interval, parameters were taken. While pumping at 7 BPM and rotating at 60 RPM, the work string was reciprocated through the 18 m interval making three passes to thoroughly deburr the perforations. With the Well Scavenger tool located in the BHA below, the RIDGE BACK Burr Mill conventional circulation was accomplished while deburring.

However, from the Well Scavenger tool to the bit, a reverse flow was initiated and maintained. This allowed the debris to be recovered at lower pump rates and ECDs. Once the debris was recovered down to the GT plug with the Well Scavenger tool, the retrieving tool was latched on to the plug and the release procedure commenced. The top of the plug was tagged and 20K weight set down, the string was then picked back up to neutral with 70 turns applied at surface. The GT plug was then confirmed to be released from the casing.

This one run resulted in not only deburring the perforated interval and retrieving the GT Plug, but also 142 lb (56 kg) of debris recovered in the Well Scavenger tool and 15 lb (7 kg) of ferrous debris on the MAGNOSWEEP II tools.

More importantly, the client saved two days of valuable rig time during this completion, which lowered the overall completion cost and enabled them to put the well on production sooner.

The client representative has since expressed how impressed he was with the level of expertise and communication shown by M-I SWACO personnel offshore, onshore Brunei and in the UK support function during this operation.

This is yet another success story for the Well Scavenger tool that has gone from strength to strength since its



The WELL SCAVENGER training school for local and Malaysian based personnel conducted by Brian Coll.

introduction to the Brunei operation. Special mention should go to Peter Joseph, operations manager, and Kenneth Sim, account manager, Brunei, who continue to be a great champions of new technology tools in the region and also Kenny Reid who conducted himself admirably offshore during this procedure.

While in Brunei, Joseph, Sim and Brian Coll, business support manager – New Technologies, met with the client representative to discuss the successful job and future similar operations. Coll also conducted a WELL SCAVENGER training school for local and Malaysian based personnel.

# First Chinese deepwater rig chooses UltraDril fluid system

In March, the China National Offshore Oil Corporation (CNOOC) started their exploratory deepwater drilling campaign in South China Sea with their first national deepwater semi-submersible rig "Hai Yang Shi You 981", operated by China Oilfield Service Limited (COSL).

The M-I SWACO joint venture fluids company, China-Nanhai Magcobar Mud Corporation Ltd., was privileged to provide CNOOC with our high performance ULTRADRIL<sup>†</sup> water-based system for three deepwater wells. It goes without saying how important it was for our client that the delivery of our services went without any incidents or delays during the critical first series of wells drilled by a team new to deepwater and with a brand new drilling rig.

The challenges to drill a deepwater well with a new rig are tremendous, particularly when this would also be the first deepwater well for client team. The expectations were extremely high, with the project gaining very high visibility in the national media, the local industry and the client's top level management. All wells presented characteristics of typical deepwater drilling: low water temperatures, high risk gas hydrates, newly buried strata, reactive shales and narrow margin drilling. In consideration to these, along with environmental considerations, Magcobar and CNOOC selected our deepwater-proven Ultradril water-based drilling fluid. The UltraDril fluid had the proven track-record in deepwater to get the job done.

The water-based system demonstrated high inhibition and excellent wellbore stability during the project. Its triple inhibition approach, shale hydration inhibition, cuttings dispersion inhibition and anti-accretion (bit balling) inhibition proved once again how effective and reliable this system is. Maintaining the proper concentrations of the key inhibitors was the main focus to ensure success.

In addition to the high performance fluid, our own high performances team of mud engineers: Ao Hongbing, Wang Xiaodong, Wei Jian and Ruddy Purnama, along with project engineer Peng Fang, and the entire Magcobar operations team, were key factors for the success of the project. Preplanning was essential to deliver customer satisfaction. Thanks to the efforts of our team, the fluid services were executed with excellence.

Water depths for this project ranged from 2,625 to 4,920 ft (800 to 1,500 m). In 2013, CNOOC will drill a

deeper well in 7,875 ft (2,400 m) of water, utilizing our Rheliant Plus<sup>†</sup> system. The Rheliant Plus system has already proven its ability to deliver trouble-free drilling in the South China Sea for Husky Energy and Chevron.



Left: The new liquid mud plant at the Chiwan base, Shekou, Shenzhen. Below: The China-Nanhai Magcobar Mud Corporation LTD LCM Training School graduates.



A new liquid mud plant has also been built in Chiwan base, Shekou, Shenzhen to supply China's deepwater drilling and completion demands, having supplied the completion fluids for Husky's deepwater development project and base fluid for UltraDril fluid that was used on the CNOOC project.

Magcobar has built a reputation as the most recognized and reliable deepwater drilling fluids company in China, maintaining 100% of the China deepwater market. Having done this, Magcobar has no intention of relaxing. Continuous improvement and personnel development are a must, as well as improving and building strong relationships with our clients. Recent technical seminars provided for clients include "Lost Circulation Material Training", introducing Alpine newest technology, and "Deepwater Drilling Fluids Technology Seminar".

The successful completion of CNOOC's first three deepwater wells, represent a major step forward in deepwater drilling for CNOOC, and a great opportunity for Magcobar and M-I SWACO to deliver our very best technology and service to help CNOOC realize their deepwater ambitions.

# Career Development and Training

## Schlumberger PPS runs Lost Circulation Workshop in Houston

Six M-I SWACO Project Engineers attended the Schlumberger Pressure Pumping Services (PPS) for the North Gulf Coast (NGC) region Lost Circulation Control Workshop in Houston, held on Sept. 13–14. The workshop was attended by 27 deepwater cementing and drilling fluids engineers as well as technical services engineers and managers from both Well Services Well Integrity Technology (Cementing) and M-I SWACO Drilling Solutions segments.

The course covered the diagnostic and analysis of causes for losses through understanding of rock mechanic principles, surface events, and open hole logs from imaging tools. It included an overview of WIT and M-I SWACO loss circulation products and, their applications, including case histories.

Training included the Loss Circulation Control Advisor software that incorporates

surface and down hole logs and provide a suitable guidance for loss circulation analysis and, loss circulation pill design. Attendees also had an overview of I-BOSS<sup>†</sup> suite of wellbore strengthening solutions, MD-3<sup>‡</sup> shaker and Well Commander<sup>‡</sup> tool capabilities.

A group exercise on real case allowed participant to apply the knowledge gained and present their solution to the group. This workshop was an excellent demonstration of synergy and

effective collaboration between both segments addressing a common drilling challenge.

Loss circulation while drilling or while cementing is one of the major causes of NPT or failed job criteria in our industry, particularly in the Gulf of Mexico.

M-I SWACO attendees John Browning, Damian Vickers, Jason Dore, Steve Renaud, Dennis Williams and Tim Armand said the class was very informative and provided a better understanding of the mechanisms associated with what type of losses are occurring, and what treatments would be best suited for those losses. The speaker for the geo/rock mechanic portion of the school helped explain what is occurring to the formations both above and below depleted sands. The school also helped attendees to add another tool in our box, in providing solutions to loss circulation events in deepwater.



The entire Lost Circulation Workshop group, including six from M-I SWACO.

### E-Campus rolls over to Schlumberger iLearn system

The M-I SWACO Career Development and Training (CDT) team has completed the rollover of the M-I SWACO E-Campus online learning system to the Schlumberger iLearn system.

"It is the same system," said Kendra Nolan, CDT project manager. "It just has a different entry point."

The iLearn system retains all of the training data and records from the E-Campus system so no one will have to retake any classes. The move further integrates M-I SWACO systems with Schlumberger processes and opens up the door to additional training opportunities for M-I SWACO employees.

To access iLearn, follow this track by going to:

- Schlumberger HUB
- Learning & Development
- Career Center
- Access iLearn for your Training

It can also be accessed by the following iLearn HUB direct link: <http://www.hub.slb.com/display/index.do?id=id2949025>

## Environmental Solutions Schools

### August ES Basic Certification Class



An ES Basic Certification class was held at North Course Sept. 24–28. Sixteen employees attended the class, taught by Luca Rosa, Marcus Brand and Nicolas Aubone. Attendees were Gibson Jura, Alberto Garcia, Jorge Pinto, Jose Alfredo Goxcon Mulato, Julian Montan, Luis Diaz, Barani Venkataraman, Roberto Perez, Alejandro Narvaez, Eduardo Grimaldo, Enrique Casanova, Jorge Correa Sanchez, Bharadwaj Edupuganti, Manuel Suarez, Bacari Robinson, and Jeremy Lee.

### September ES Basic Certification Class



An ES Basic Certification class was held at North Course Sept. 24–28. Fifteen employees from throughout Latin America attended the class, taught by Juan Patriz Jaimes and Joseph Hebert. Attendees were Jose Cuahutle, Fabricio Moncayo, Obdulio Roblero, Wilfrido De La Cruz, Javier Ceballos, Nabor Mercader, Ricardo Vazquez, Gabriel Lopez, Edgar Honorio, Lazaro Roca, Jorge Guzman, Franco Martinez Benhur, Diana Rivera Calvo, Hernan Beltran Bermeo, and Fernando Sanchez.

### October ES Basic Certification Class



An ES Basic Certification class was held at North Course Oct. 22–26. Fourteen employees, mostly from Colombia, attended the class, taught by Marcus Brand. Attendees were Hever Laguna Riveros, Alexander Miranda Pinto, Wilman Perez Becerra, Paulo Andres Quintero Bolanos, Juan Diego Medina Rueda, Isaias Buenaventura Leyton, Pablo Cuta Tibaduiza, Isaim Vargas Quintero, Negar Rajabi, Nelson Diaz Ocampo, Francisco Fernandez Parada, Andres Julian Barco Reinosa, Javier Mauricio Berdugo Silva, and Mike Rollman.

### Oil-Based Mud Seminar in Bolivia



An oil-based mud seminar was held Santa Cruz, Bolivia from Oct. 22–25. Participants, from the left, were Jaime Quisbert Cuti, YPFB; Rómulo Llanovarced, YPFB; Elias Arteaga Fabricano, YPFB; Martin Aguilar, YPFB; Sergio A. Miranda Cabrera, PETROBRAS; Alejandra Claudio Belaunde, M-I SWACO; Henry Troche Quisbert, YPFB; Carmen Isabel Figueiredo, M-I SWACO; Mayer Jesus Villaroel, PETROBRAS; Marco A. Chavez Loza, PETROBRAS; Instructor Benjamin Paiuk, M-I SWACO; Oscar Lucio Henicke Gutierrez, PETROBRAS; Jorge Oliver Mostajo Garron, PETROBRAS; Jose Luis Lorenzetti, PETROBRAS; and Jorge Moyano, M-I SWACO Bolivia Country Manager. Not pictured were Dennys Barrero, PETROBRAS; Ymbler Saldias Callejas, PETROBRAS; and Edmundo Majluf, PETROBRAS.

# Mud Schools

## Spanish Basic Mud School



A Spanish Basic Mud School was held at North Course in Houston Aug. 13 – Oct. 4 with 22 graduates from around Latin America. Attendees were Luis Alvarez, Chile; Carmelo Antelo, Bolivia; Chehin Arias, Colombia; Juan Baquero, Ecuador; Silvana Bejarano, Ecuador; Holger Carvajal, Ecuador; Mauricio Castro, Venezuela; Gianfranco De la Cruz, Ecuador; Antonio Diez, Ecuador; William do Santos, Brazil; Juliomar Flores, Venezuela; Julio Garcia, Ecuador; Denys Gutierrez, Bolivia; Elvis Guzman, Bolivia; Joscar Marin, Venezuela; Oswaldo Mayo, Venezuela; Diego Paez, Ecuador; Gabriel Roca, Bolivia; Marcia Rosero, Ecuador; Jasson Vasquez, Colombia; Huascar Villegas, Bolivia; Erika Villarreal, Colombia. Instructors were Ben Paiuk, Yaravi Arias and Osvaldo Hernandez.

## Basic Mud School



Thirty-four students successfully completed Basic Mud School, held at the North Course campus in Houston Sept. 24 – Nov 15. Attendees were Rickey Finklea, Harvey; Clayton Yocham, Harvey; Neal Jr. Smothers, Harvey; Kelly Leboeuf, Harvey; Chelsea Squires, Canada; Luis Alfredo Roble Coronado, HDD - Peru; Javier Zevallos, HDD Denver; Karim Naser Mohamed Fawzi Moussa, UK; Ellis Garner, UK; Margeaux Elliott, UK; Steven MacDonald, UK; Hashim Al-Nakeeb, Denmark; Ivan Cammalleri, Italy; Stefano Mancini, Italy; Adam Stratton, Alaska; Kirk McKenna, Alaska; Christopher Ling, Alaska; Ernest Baker, West Texas; Mark Lovas, West Texas; Lacey Zhao, West Texas; Taylor Fontenot, PROACT; Keith Covert, PROACT; Froydis Lunde, Norway; Louise Josefson, Norway; Ai-Chu Chang, Norway; Lee Tower, ES Capital Sales; Abdulkarim Karimov, Azeri; Rafael Jimenez, Ecuador; Lucian Stepanov, Romania; Victor Zmeu, Romania; Costin-Catalin Decu, Romania; Iulian Dinu, Romania; Romain Recrut, Congo; Dilip Samla, Trinidad; Instructors: Dean Dixon, Bruce Hammond, Mark Kilburn, Wale Talabi.

## English Basic Mud School



An English Basic Mud School was held at North Course in Houston July 9 – Aug. 30 with 69 graduates. Attendees were Kevin Adams, Corpus Christi; Justin Alcorta, Corpus Christi; Richard Jenkins, Corpus Christi; Jeff Poole, Corpus Christi; Vasyl Chuyko, Germany; Christian Weber, Germany; Michael Low, Northeast; Felipe de Oliveira Henriques, HDD - Brz; Jesus Gomez, Mexico; Juan Mantufar, Mexico; Elier Olivares, Mexico; Carlos Vidal, Mexico; Siri Tangen Aaserud, Norway; Karina Polden, Norway; Arnulf Sigve Refsnes, Norway; Endre Nyli Sandberg, Norway; Torstein Gaarder Skarsgard, Norway; Carlos Arevalo Rodriguez, PROACT; Vidya Raja, PROACT; Judge Gambill, Rot'l Pool; Alan Lott, Rot'l Pool; Ramil Asadov, Azeri; Shahin Gafarov, Azeri; Samir Kanafiyev, Azeri; Michael Asmus, Canada; Daniel Brown, Canada; Andrei Kolos, Canada; Mitchell McLeod, Canada; Jonathan Stewart, Canada; Kyan Thompson, Canada; Jorge Anaya Garrido, Colombia; Jenniffer Solange Ayala Rivera, Colombia; Diego Alberto Bello Nino, Colombia; Marvin Alonso Marulanda Ortiz, Colombia; Carlos Alberto Zapata Diaz, Colombia; Joseph Carter, Harvey; Charles DeRoun, Harvey; Bradley McKay, Harvey; Jordan Poole, Harvey; Jared Shelton, Harvey; Rhett Watson, Harvey; Jeremy K. Fontenot, Lafayette; Shon Riley, Midland; Justin Roberts, Midland; Jerry Wicker, Midland; Tyler Bieroth, Rockies; Dallin King, Rockies; Eric Neal, Rockies; Bradley Perry, Rockies; Joseph Wilson, Rockies; Ryan Ramrekha, Trinidad; Shayanna Khristal Ali, Trinidad; Graham Cowie, UK; Ewan Macleod, UK; Ross Murray, UK; Shankar Sreekumar, UK; Sean Casey, West Coast; Atalie Daniel, West Coast; Alejandro Fernandez, West Coast; Joel Hembree, West Coast; Brian Jones, West Coast; Joshua Lynd, West Coast; Jamie Marquez, West Coast; Wai Moe, West Coast; Jeffrey Wilson, West Coast; Jeffre Quinn, West Coast; Kumar Ramtalhal, Houston Alpine; Travis Quebodeaux, Houston Corp; and John Troncoso, Houston ERL. Instructors: Dean Dixon, Bruce Hammond, Mark Kilburn, Wale Talabi.

## Mud Schools Continued

### Bangkok Mud School



On Oct. 27–28 students from 11 locations graduated from a Basic Mud School held at the Bangkok, Thailand Training Center.



Boubekri Amine, from Algeria, achieved the best score.

### EAF Advanced Project Engineering School



An EAF Advanced Project Engineering School was held in Bucharest, Hungary Oct. 1 – 6. Participants included, standing, Doug Oakley, Hassini Abdesselem, Ryszard Kwientinski, Manuel Voinea, Mikhail Artamonov, Ovidiu Orbean, Marius Smarandoiu, Loredana Chirila, Florian Oprea, Sherif El Mokadem, Mohamed Bennanis, Doug Pillow, Sunny Ononogbu, Scott Duguid, Claudia Grandi, Victor Onyechi, Fridrik Klausen, Godwin Chinda, Ivo Rancich, Radu Campian, Simon Adjobi, Wout de Kroon, Cecilia Torvund, Serra Monnier, Stefan Brekke, Edecan Amanat, Snorre Lutnes. Kneeling are Ferras Brahim, Dabouz Mohamed, Maher El Torkey, Vincent Oko, Abdullah Elobeidi, Friderik Kramberger.

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# Awards and Anniversaries

## Jim Bruton celebrates 40 years with M-I SWACO



M-I SWACO President Joe Bacho, left, presents Jim Bruton with his 40 Year Service Award.

VP Research & Engineering Jim Bruton was honoured with a gathering in the North Course Auditorium to celebrate his 40 years with M-I SWACO. He joined Dresser Industries on Oct. 9, 1972 as a Sales Engineer trainee after earning a BS in Geology from the University of Houston. He attended Mud School and was subsequently assigned to Pensacola, Florida for the Jackson-Eastern Area of Magcobar Oilfield Products Division – served in Mobile, Alabama and the Texas Gulf Coast until he moved to R&E.

In June 1977, Jim moved to the Technical Services Group as a Tech Service Engineer. From there, he rose through the ranks and joined the executive staff as VP Research & Engineer in February 2005.

## Emanuel Stamatakis celebrates 35 years in the M-I SWACO lab

In early 1987, Emanuel Stamatakis first walked the North Course lab where he has been an important member of numerous product development, application and manufacturing teams. By that time, he had been with M-I SWACO for 10 years. Responsible for the development of many new and improved M-I SWACO products, Stamatakis said the key to solving problems is creativity. Proud of his longevity in the product development lab, Stamatakis said it is rare to find someone today who will reach the 35 year mark in one area of expertise. However, he believes he still has more work to accomplish and hopes to see more milestones with M-I SWACO.



VP Research & Engineering Jim Bruton, left, presents Emanuel Stamatakis with his 35 Year Anniversary plaque.

## Willie Heron celebrates 30 years at the Foss Mine in Aberfeldy, Scotland

Willie started Sep. 1, 1982 when the Foss Mine in Aberfeldy, Scotland was barely a single short tunnel running into the hillside. He worked in all the different jobs available on site until he took over as Mine Manager in 2004.

Always a small and very complex mine, Foss has produced over 1.1 million T of barite ore in that time. And despite being an underground operation, has managed to stay competitive in supply of the North Sea sector. The deepest point is now 508 ft (155 m) lower than the mine entrance with tunnels extending to around 4 mi (7 km) spread over nine levels of working.



Left to right are VP Eastern Hemisphere Minerals Egil Mellgren; Foss Mine Manager Willie Heron receiving 30 Year Service Award; Ian Hughes, project manager, Aberfeldy; and John Christie, project manager (retired), Aberfeldy.



ES Project Engineer Samson Robinson, right, receives his Five Year Service Award from Ghana Country Manager Kenny Rait at the Takoradi Operations Base.



NGA Financial Controller Tunde Awotunde (left) receives his 15 Year Service Award from EAF Vice President Jim Andrews at the M-I SWACO Ghana Accra office.



Bob Myles receives his 10 Year Service Award at the Alaska seniority banquet on Sept. 14. Myles is the M-I SWACO Alaska Kenai Warehouse Manager. From left to right are Alaska Area Manager Raymondo Figueroa, Bob Myles, and Lees Rodionov, Schlumberger AKA GeoMarket Manager. The seniority banquet is combined to present to both M-I SWACO and Schlumberger employees.



Technical Implementation and Service Quality Manager for ES James Gunnels, right, presents Technical Service Engineer Tom Neugebauer, left, with his 10 Year Service Anniversary Award.



CLEANCUT Global Operations Support Engineer Geoffrey Camm, center, receives his 20 Year Service Award from CleanCut Business Development Manager Gordon Logan, right, with CLEANCUT Operations Supervisor Angeline Michael, to the left.

# Anniversaries cont.

Anniversaries continued from back cover

Jr Oswald Catlyn	Cristian Javier Gimenez	Rafael Loor	Denis Petrov	Ishbaal Tchissambou
Anachury Ivan Chadid	Moises Gorozabel	Javier Jose Lopez	Igor Pevnev	Magar Kiran Thapa
Jamel Cheour	Kevin Graham	Brontiz Lopez	Oleksandr Podolian	Itthiphon Thepnok
Carlos Facundo Chiora	Vyacheslav Gudkov	Rosa Lopez	Robert Pollack	Dustin Thomason
Arnaldo Chissano	Devagiri Guadla	Julio Lopez	Oleg Pozdnyakov	Marcelo Alexis Tilleria
Julie Chong	Wilson Guerrero	William Lourie	Mickeal Ptak	Bernardo Tina
Gualberto Choque	John Guevara	Andre Lowkee	Justiniano Quinonez	Michael Tipton
Jose Chuquisala	Elizaveta Gugkaeva	Gerardo Julian Luna	Alberto Maximiliano	Jose Toapanta
Carlos Danilo Cisneros	Mikhail Guziy	Edgardo Luna	Quiroga	Andrew Topley
Sanchez Washington Cobo	Benahmed Haddadou	Mykola Lyaskalo	Brijesh Kumar Rai	Laura Tovar
Holger Coquinche	Syed Shahzad Haider	Patricia Mabiala	Ahmad Ramzi	Analuce Trigueiros
Oliver Coquinche	Ragim Hankishiyev	Darinsou Farideh	Macdonald Ewen	Evgeniy Tsipilev
Igor Corlja	Alan Joe Hartley	Mahmoudi	Ratcliffe	Maurilio Valdes
Euan Crichton	Hassanein Hani Hassan	Eugen Maistrenko	Pramod Raut	Jaime Valero
Da Cru Milene Cristovao	Abdul Hakeem Hassan	Pavel Malyshkin	Bruce Rentrop	Hector Valle
Christian Cruz	John Henderson	Akramkhan	Otero Luis Reyes	Venkata Vankayala
Angel Cusme	Veronica Hernandez	Mamatkhanov	Rincon German Reyes	Reinoso Luis Varela
Silva Daniel Da	Hernan Hernandez	Joao Marcos	Neil Ritchie	Angel Vasquez
Silva Junior Paulo Da	Romero Marbelis Caro	Christopher Marriott	Carlos Rivera	Denis Velez
Nina Danilchenko	Hernandez	Richard Mason	Zaque Leonardo	Eduardo Velez
La O Brenda De	Frank Hintze	Mickel Matroos	Rodriguez	Marcelo Anibal Vietta
Los Santos Morales De	Kurt Idar Igland	Euvgeny Mavrodi	Jesus Rojas	Roger Walters
Yevgeniy Derevenko	Kira Camilla	Juliano Mazebo	Rondon Paulimar Del	Bo Wan
Charles Derouen	Ingelsrudoyen	Susan Mccrum	Rojas	Xianfeng Wang
Domingos Dianduala	Daniel Ingram	Joseph Mcfarland	Yury Rudenko	Xuguang Wang
Vladimir Dmitrishin	Frans Jager	Jerry Mcrae	Juan Ruiz	Brandon Welch
Nascimento Ovidio Do	Joffre Jaramillo	Morales Mayra Elizabeth	Pavel Ryabov	Michael Whiteley
Cantillo Wilington Duran	Graham Jenneson	Mejia	Claudio Luciano Saez	Jeremy Wolf
Benjamin Eboli	Hans Kristian Jensen	Mohamed Mourad Mekki	Zaki Abdalla Salama	Alfred Wright
Montealegre Andres Echeverri	Claudio Jeronimo	Maria Melnikova	Nelson Salas	Jukka Yletyinen
Ena Echeverria	Blair Jerrett	Marcos Antonio Mendoza	Julio Salmeron	Biodun Yusuf
Tommy Ellertsen	Bradley Jones	Carol Metzinger	Khaled Samaha	Konstantin Zabolotny
John English	Christopher Jones	Alberto Mina	Artem Sanaev	Jorge Zambrano
Luis Enriquez	Troy Jones	Rizk Adel Mohamed	Franco Alberto Sanchez	Volodymyr Zaydel
Maria Epryntseva	Royden Jones	Al Harthy Mohammed	Jhony Sanchez	Jie Zhang
Daime Espinoza	Atul Kale	Mohammed	Bente Kristine Sando	
Alejandro Espinoza	Ladjji Kamara	Alexandr Mordyukov	Cynthia Sequerah	
Samaan Fady Fahim	Yessengeldy	Pavel Moskovchenko	Andriy Seredynskiy	
Roman Fernandes	Karzhaubayev	Ali Abdelkrim Mouhai	Pinki Shah	
Kelly Marie Fiddes	Radik Kashapov	Hans Heinrich Mueller	Yevgeny Shevtsov	
Iurii Firmaniuk	Stacey Kendall	Ilkhom Mukhammadiev	Guerrero Rafael Siado	
Richard Flesher	Atif Hassan Khan	Alexandr Murzakov	Tony Signorelli	
Miguel Carlos Forni	Igor Kharchenko	Reymundo Napa	Reynold Sitorus	
Truls Fossdal	Fred Kleine	Junior Ilfran Nava	Christian Skau	
Gabriela Fragachan	Asbjorn Knutsen	Bolivar Noa	Ivan Smirnov	
John Gaertner	Wendy Koller	Jason Norris	Chioma Smith	
Amir Gafurov	Alexandr Kosovsky	Ricardo Obando	Leendert Sol	
Andrey Galeev	Nikolay Kurshin	Erbin Damian Ojeda	Fernando Americo Solis	
Jorge Garcia	Tachnazar Kuvanchev	Bhupendra Ojha	Albert Solovev	
Erik Gardner	Natalia Del Carmen Labra	Sanchez Agustin Olmos	Artem Soykin	
Anilu Garfias	Christofer Landeros	Alexander Olsen	Irina Strokova	
Olga Gazizova	Gregg Lapinskie	Abdelmadjid Ourihane	Anders Sebastian	
Helen Gee	Victor Lara	Jorge Paguay	Stromborg	
Mohamed Ghanem	Raymond Lauritzen	Erico Alejandro Palacio	Marina Sukhova	
Antonio Gime	Sergey Lesuk	Carlos Hector Palacios	Fengzhao Sun	
	Sooi Kim Lim	Johnny Palacios	Abdul Rahim Syed	
	Kim Lodewijckx	Joar Pedersen	Shilong Tang	

## Anniversaries

465 employees are recognized with service anniversary awards. With 40 years with M-I SWACO, Jim Bruton, Theodore Dillard, and Bernard Landry are the senior members of the 465 employees receiving service awards in the fourth quarter of 2012. The remaining 462 employees and their years of service are:

### 35 Years

Ronnie Braswell  
Wilfred Doucet  
Billy Howard  
Rosario Mogano  
Jorge Moyano  
Carl Ray  
Jimmy Thompson

### 30 Years

Gary Bauereis  
Siok Eng Chua  
Mirja Eklund  
Bobbie Labarre  
Fabio Sito

### 35 Years

Abdelhalim Gamal Ahmed  
Timothy Armand  
Shaun Atwood  
Egil Barstad  
Dennis Bowling  
Janis Carroll  
Ragia Eldefrawi  
Sherif Elmokadem  
Gad Allah Abdelraouf Elsayed  
Mark Fairbanks  
Micheal Ghobrial  
Troy Giesler  
Brian Hunter  
Dan Jefferson  
Timothy Johnson  
Vincent Marsiglia  
Maged Megally  
Gerges Nabil Micheal  
Taher Ahmed Mohamed  
Manuel Moreno  
Joseph Morris  
Rune Olsen  
Michael Ritchie  
Patrick Scott  
Allan Wilshire

### 20 Years

Espen Andersen  
Ramdane Bebiche  
Philippe Bolle  
Geoff Camm  
Efren Cuellar  
Alasdair Dunsmuir  
Rodriguez Henry Guerrero  
John Guidry  
Frank Itanee  
Mark Kilburn  
Ricky Livingston  
Cato Olsvik  
Thompson Onyenuewe  
Perrin Rincon  
Michael Rousseau  
Ah Lin Song

### 15 Years

Idir Abdelli  
Sherry Adams  
Claudia Baqueiro  
Suyatno Darno  
Carvalho Carlindo De Oliveira  
Evilasio De Altaf Deshmukh  
Christopher Dirksen  
Santos Ivanildo Dos Joseph Dupont  
Erlend Faero  
Christopher Frye  
Luis Guevara  
John Haley  
Ronald Head  
Dougan Jorge Jones  
Esa Julkunen  
Erik Kalleklev  
Mika Karhu  
Bjarne Kielland  
Peter Lenzenwoeger  
Mark Luyster  
Karen Massam  
Marian Micu  
Pamelia Miller  
Anne Mo

Serra Monnier  
Jeffrey Nastasi  
Yury Nigmatov  
Atle Nottveit  
Oluwatoyin Ojo  
Leif Tore Oland  
Antonio Oliveira  
Edmilson Antonio Oliveira  
Boyd Ramage  
Gro Synnove Ryste  
Jose Salutregui  
Christopher Shepherd  
Stephen Stone  
Rick Terry  
Eva Tovar  
Stanislav Usynin  
Jose Vieira  
Lester Villnerve  
Giovanni Vitali  
Julie Wright

### 10 Years

Iyes Allalou  
Rene Barcenas  
Aicha Hanen Ben  
Sean Bender  
Abdelkader Bensaci  
Elidio Bezerra  
Tarek Blal  
Ramon Blanco  
Elena Braun  
Darrell Caldwell  
Carlos Capitanachi  
Leah Cermenelli  
Nacer Chaibi  
David Cook  
Damian Correa  
Robert Cotton  
Stephen Davis  
Oliveira Monique De Daniel Dobbins  
Bouaissi Elagrari  
Kenebi Ezeugo  
Erik Fernandez  
John Garza

Vincent Gilchrist  
Chintan Gohel  
Mohamed Guenfoud  
Khaled Guizaoui  
James Henderson  
Sarom In  
Indriani Indriani  
William Johnson  
Xavier Joinneau  
Marcos Andres Juarez  
Deepak Kala  
Alexey Kanonerov  
Omar Khan  
Irina Kharichkina  
Brad Kramer  
Wilbert Leblanc  
Colin Lennon  
Yury Lukovkin  
Iofy Malickal  
Mehman Malikov  
Nour Eddine Mechir  
Timothy Moore  
Andrew Murray  
Vasili Nebesny  
Thomas Neugebauer  
Velavaraj Nirmaladevi  
Abdellatif Omri  
Froylan Pedraza  
Marcelo Pereira  
Hector Perez  
Nickolay Petrov  
Visarut Phunpuntin  
David Power  
Sara Pozzati  
Andrew Price  
Abderrazak Rahmene  
Mustapha Rahmani  
Cantu Carlos Rodriguez  
Pieter Rollman  
Koh Ming Hong Roney  
Khaled Saraoui  
Daniel Oscar Schwaab  
Alexey Shevchenko  
Mathew Solina  
Adel Tebbal  
Pedro Tejeda  
Angela Tischenko

John Trimble  
Gulshat Uspanova  
Patrice Versailles  
Yevhen Vishnikin  
David Wadelich  
Bruce Whyte  
Felix Xavier  
Mohamed Yagoub  
Robert Ziriax

### 5 Years

Ahmed Abulwafa  
Hemetary Adel Al Sayyid Ali  
Salah Ali  
Damir Allagulov  
Wilson Alvarado  
Alfonso Andrango  
Asfaque Aramkuni  
Kenneth Armour  
Sergii Atamanchuk  
James Atkins  
Cortez Raul Azuga  
Ernest Badeaux  
Natig Bakhishov  
Martin Baldivieso  
Claire Barclay  
Ubernel Bareno  
Bruno Marcelo Barrientos  
Brian Barton  
Andrey Bayandin  
Yahia Issam Belhares  
Ismail Haitham Ben  
Abdul Wahab Jamal Bin  
Allan Boesen  
Amine Boubekri  
Moses Briseno  
Denis Brown  
Stephen Brown  
Alba Brunello  
Sergey Bulychev  
Jose Capita  
Johnell Carter  
Marcos Gabriel Casas  
Fidel Castro  
Rojas Edith Juana Castro

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