Core Laboratories provides this service to all manner of major, national and independent oil companies globally, with a global presence in 50 oil-producing countries. The company is broken down primarily into two businesses sectors – reservoir description and production enhancement. “A lot of the effort Core Lab places in the development of our technology is really built around our customers’ need to enhance their reservoir rock and energetic performance, there are few companies with more experience in geological analysis and rock characterisation technologies than Core Laboratories,” explained Matthew Clay, Engineering Director of Owen Oil Tools.

Maximised productivity
Core Laboratories continues to be at the forefront of perforating technology, demonstrated by the recent launch of the ROC Lab in Godley, Texas. Used to formulate and test perforating completion strategies, ROC Lab is designed to determine the best energetic solutions for a specific rock type in order to maximise the productivity of an operator’s reservoir. The ROC Lab is a collaborative development between the ballistics experts in Core Laboratories’ production enhancement sector and scientists on the reservoir description side, presenting clients with the chance to obtain measured data on the interrelationships of rocks, pore fluids and various energetic options in realistic reservoir conditions. It features an industry-leading perforation test vessel, paired with a proprietary flow system that uses highly specialised, internally developed and manufactured pumps and flow controllers.

Together, these technologies create a proprietary flow loop capable of dynamically displacing gas through rock samples that have been perforated with preselected energetics.

“The ROC Lab facility allows us to take the correct rock core and prepare it for downhole conditions in terms of fluid, gas, saturations, bedding planes etc,” outlined Shaun Geerts, Design Engineer at Owen Oil Tools. “We put the rock core inside a test vessel, where we can condition it to the same stress, temperature and orientation parameters as our customer’s well. Then we can load the system with a perforating gun module which has the correct gun, the correct charge, test it under in situ well conditions, and then flow through that core to evaluate perforation efficiency.”

“Mr Geerts revealed that the ROC Lab as accurate as possible,” he affirmed.

Perforating different markets
The Core Lab global operation was strengthened in September 2018 with the acquisition of Guardian Global Technologies, a technologically sophisticated designer of a leading provider of proprietary technologies that Core Laboratories is dedicated to providing. production enhancing services, Core Laboratories provides this service to all manner of major, national and independent oil companies globally, with a global presence in 50 oil-producing countries. The company is broken down primarily into two businesses sectors – reservoir description and production enhancement. "A lot of the effort Core Lab places in the development of our technology is really built around our customers’ need to enhance their reservoir rock and energetic performance, there are few companies with more experience in geological analysis and rock characterisation technologies than Core Laboratories,” explained Matthew Clay, Engineering Director of Owen Oil Tools. “Whether we continue to develop or acquire new technologies, it’s meant as a way to complement our existing products and services. It’s our job to disseminate these technologies throughout our global network to ensure all of our customers can benefit.”

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When it comes to analysing reservoir rock and energetic performance, there are few companies with more experience in geological analysis and rock characterisation technologies than Core Laboratories. A leading provider of proprietary and patented reservoir description and production enhancement services, Core Laboratories is dedicated to providing production-enhancing technologies that enable clients to optimise their reservoir performance and maximise hydrocarbon recovery from their producing fields.

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Thanks to the ROC Lab, Core Laboratories can reproduce almost any real-world reservoir condition to determine the proper energetic perforating completion system and maximise reservoir productivity. Mr Geerts revealed that the ROC Lab was a multi-year endeavour for Core Laboratories, taking three years from initial discussions to opening the facility.

“After initial discussions to opening the facility, it has been a fairly long process to get into this technology. There’s a lot of highly specialised flow equipment in the lab and a majority of it was designed and fabricated internally at Core Lab,” he added. Continued investment in cutting-edge technologies, such as the ROC Lab, is something that Mr Geerts believes has helped Owen Oil Tools continue to be a leader in technological innovation.

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Over the last 80 years, Core Laboratories has evolved into one of the oil and gas industry’s technological leaders when it comes to reservoir optimisation. The company has been complemented since 1998 by Owen Oil Tools who, as a member of Core Laboratories’ production enhancement portfolio, has continued to manufacture and distribute advanced perforating systems with a focus on improving returns on customer investment. Core Laboratories has recently advanced its portfolio of services even further with the launch of a new, cutting-edge Reservoir Optimised Completions (ROC) Lab, designed to determine the best fit-for-reservoir energetic solutions. Jack Salter reports.

Inside Industry
and manufacturer of downhole instrumentation utilised by international oil and gas operators for well completions. Being able to incorporate all the different Core Laboratories’ technologies into helping customers design completions that are as efficient and productive as possible is a big benefit of the company’s technology suite. "We can now offer a suite of electronic downhole tools to complement our existing facilities in Texas, Canada and the UK, where we also design, test and manufacture explosive products, perforating gun hardware and remedial equipment," Mr Clay said. Mr Clay observed that Core Lab has been seeing increased activity in the international market, which he believes will show that the technologies created by the Production Enhancement and Reservoir Description segments of Core Lab will provide improved well performance. "Owen Oil Tools operates internationally as well. We sell perforating completion systems around the globe. Our international markets have started to see some growth and investment in the last year," he added. Over the last couple of years, Owen Oil Tools has expanded its portfolio of services with technologies serving both the unconventional and conventional markets. For unconventional completions, Owen Oil Tools has experienced growth in the development of its perforating systems designed for horizontal wells. TCP applications, meanwhile, have become more prominent in the conventional market for the company. "We continue to invest in a list of technology for the unconventional market, such as new gun systems and addressable switch technology, to provide the best possible and most efficient perforating systems," commented Mr Geerts. "For the conventional market, we’ve got a new TCP transfer system we are rolling out and testing for increased reliability, performance and running TCP products. So overall we continue to see continued growth around both avenues, but for this reason we don’t focus on one particular market over the other."
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Teaming up with operators
At the root of Owen Oil Tools’ success has been directly working with the end factor of the product, such as major operators and national oil companies who see the most value in the company’s technology. “Teaming up with clients to develop specific systems and perforating charges has helped Owen Oil Tools to solve requests effectively. “All of the greatest products we’ve released over the last couple of years have really been driven by requests from operators,” acknowledged Mr Geerts. “It’s a partnership with them and if they change their completion strategy and want to explore a different avenue, we adapt and continue to invest in technology that aligns with our customers.”

Technology, and investment in customer tailored products, is what Mr Clay believes will continue to stand Owen Oil Tools out from the crowd. In particular, he noted that the company’s ability to design reservoir-specific energetic products is something precious few competitors are capable of duplicating. “Time and time again, we see the data and hear back from our customers the energetic perforating products we manufacture are performing better than what is currently out there in the industry,” Mr Clay affirmed. “We're not focussed on providing commodity products, but working with operators to design energetic products that are specific for the reservoir is one of the big drivers that sets Owen apart.”

In terms of Core Laboratories as a whole, Mr Geerts continues to have a very positive outlook for both the unconventional and conventional markets. “We see that the growing need for oil, gas and hydrocarbons is ongoing, so we need to keep exploring new wells and also go back and recomplete existing horizontal wells,” he concluded.

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