

Careers

Striking it lucky in the oil industry

Physicists play a key role in developing the technology used to extract oil. **Stephen Mullens** explains the excitement and challenges of working in the oil industry



In the field Stephen Mullens tests and installs sensors in oil wells in Baku, Azerbaijan.

I have been working for Schlumberger for less than a year but in that time I have travelled to places I had never imagined visiting, worked offshore on a platform in the Caspian Sea, flown in a helicopter and practised putting out fires during survival training. Working in the oil industry may not be for everyone, but it definitely offers a wealth of new and exciting experiences for those who are willing to take the plunge.

I graduated from Nottingham University with a Masters degree in physics in July 2006. Unsure of what to do next, I applied to, and had interviews with, companies from both the defence and financial industries, but all they could offer me was a typical office job that would have involved staring at a computer screen all day. My father suggested Schlumberger and, not knowing much about the company, I uploaded my CV to their website and thought no more about it until I was asked to attend a two-day assessment event. This involved a couple of academic tests, although what Schlumberger really values is the ability to work well in a team and handle working abroad in potentially tough environments. I was offered a job, and began working for the firm in October last year.

Culture shock

Schlumberger is the world's largest oilfield services company, employing 70 000 people in 80 countries to provide the technology that helps oil firms such as BP, Shell and Exxon find and exploit hydrocarbon reserves. I work as a field engineer in the reservoir monitoring and control division, which tries to maximize production from existing wells. My job involves preparing, testing and

installing sensors in oil wells. This can sometimes be mundane – days can be spent checking new equipment to make sure it is up to specifications. But the exciting part of the job for me is going offshore and seeing all that work in action.

After joining Schlumberger I spent 10 days in Paris where I was introduced to the company's culture and especially to safety issues. Safety is taken very seriously in the oil and gas industry; any employee can stop an activity taking place if they feel it is unsafe. Another common feature of the industry is the long hours: you may be expected to work 12 hours a day for six or even seven days a week. But this hard work comes with many rewards – from free plane tickets and company nights out to the chance to experience different cultures. You will have the opportunity to travel the world and spend time in every continent – there is oil everywhere and talented people are needed to exploit it.

After my training in Paris, I was allocated to work in Baku, the capital city of the former Soviet republic of Azerbaijan, which is one of the many oil-rich countries that encircle the Caspian Sea. The major operations in Baku are run by BP, which manages a number of newly constructed permanent platforms that are in the process of drilling wells and starting to produce oil. Baku has serious problems with corruption, pollution and poverty, which do not always make it the nicest place to live. The city centre has many bars and restaurants that cater almost exclusively to expatriates but, other than this, there is not much to do for a non-Russian speaker. However, when you first join the company you will not have much spare time,

as you are kept more than busy enough with training and development.

The language barrier has certainly been challenging – in Azerbaijan almost everyone speaks Russian, although locals working for Schlumberger are required to have a certain amount of English. There will of course be times when your co-workers are speaking their native language and you will not understand what is going on – but if you ask them to explain, try to interact as best you can, and take language lessons, then you can turn the cultural differences into a positive thing.

Bridging the gap

I recently finished a nine-week training course based in Melun, France, that aimed to educate the field engineers in my department about the theory and practical use of current oilfield technology. The tools we learned about included an orbital welding machine that creates pressure-resistant seals and a "surface acquisition unit" that collects pressure and temperature data from oil wells. The facilities at Melun include an 800 m deep test well that contains only water – the idea being that it is better to learn here than on a customer's installation.

My future with Schlumberger offers many opportunities. It is part of the company culture for employees to change location and role every couple of years. To aid this movement, all employees attend short courses on everything from management training to finance. In my case, after 18 months in the field I will travel back to Southampton in the UK to work in research and development for Schlumberger Sensa – a fibre-optics company acquired by Schlumberger in 2001 to

develop and install temperature sensors for oil wells. After a couple of years with Sensa I will be expected, but not forced, to change role again – perhaps back to field work; or I could try project management, recruiting or something else that appeals to me.

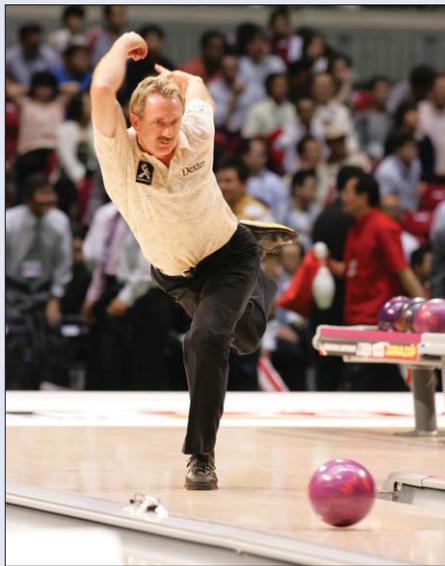
A physics degree may not at first seem the ideal qualification for work in the oil industry. During my degree I did not really “get my hands dirty” and one of the main reasons I chose to work in the oil industry was to learn to use my hands, as well as my brain, to help solve problems. However, physics graduates are ideally suited to developing the new breed of “intelligent” wells that use advanced technology to reach oil as diminishing supplies make it harder to extract.

Out in the field, physics graduates are easily outnumbered by engineers; but in the

research and development side of the company, physics graduates are everywhere. I was employed partly to bridge the gap between these strands. Currently a lot of the tools being created by our researchers are not suitable for the field because they are designed to work in a lab, not deep underground covered in oil, water and mud. The oil industry therefore needs people who can interpret what is going on in the field and feed that knowledge back to researchers in the lab. But whether you choose to start work in research or as a field engineer, the beginning of your career is a great time to take a risk and try something new.

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Once a physicist: Walter Ray Williams Jr



Walter Ray Williams Jr is a professional ten-pin bowler, based in Ocala, Florida, in the US. He has won more titles in his career than any other bowler.

What is your background in physics?

I was always good at maths and interested in science and when I took physics at high school it just seemed to make sense. I then got an associate degree in mathematics and physics at Chaffey Community College, near Los Angeles, followed by a BS in physics with a minor in maths at California Polytechnic University at Pomona.

How did your talent for bowling develop?

As a youngster, I won the boys' world horseshoe-pitching championships three times and went on to win the men's championship six times. For those who are not familiar with the sport, it involves taking a U-shaped metal object weighing about 2.5 lb and “pitching” it 37 ft at a 15 inch high

stake. The aim is to make a “ringer” where the horseshoe encircles the stake – world champions can usually do this around 85% of the time. Since horseshoe pitching is an underarm motion similar to ten-pin bowling, I thought that I might be good at that too. During college I bowled in local events when I could and joined the Professional Bowlers Association (PBA), which ultimately helped me pay my way through college.

When did you realize you could make a living as a professional bowler?

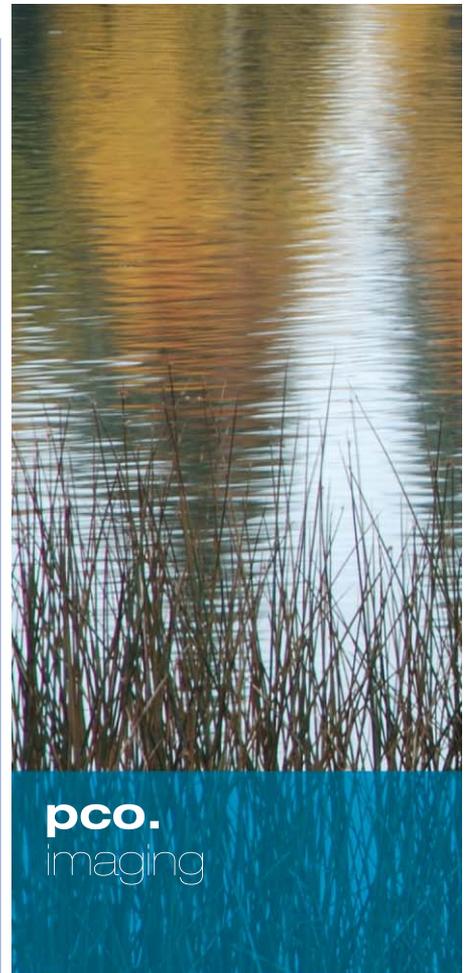
I started competing on the PBA bowling tour in January 1983, before I got my degree. I finished my thesis, which was on the physics of a bowling ball rolling down a lane, on the road. In my first full year on the tour I made more money than I spent, so I figured that I could do this for at least a few years.

What are some of the highlights of your career?

I won my first national PBA title in 1986 and after winning two more events that year was voted PBA player of the year. I have since won a total of 42 titles, which ranks me number one of all time. I have been PBA player of the year six times, and I am currently the highest ever money winner in bowling with over \$3.6m in official earnings.

Are there any ways that your background in physics helps you in your career as a bowler?

I am not sure exactly what I learned from my thesis. I think I made mistakes in some of the calculations that I keep meaning to go back over and fix – but I haven't and it has been 24 years now! However, I do think that physics is a huge part of bowling and that gives me a different insight to other players into what is going on. Unfortunately some of the variables change or are very difficult to know exactly, so it comes down to more of a statistical game – a perfect shot doesn't always get a strike.



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Highlights

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