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Chevron

'Great Minds...'

We're forging strong academic ties through our University Partnership Program (UPP).

Our investment in a select group of universities through UPP helps build academic excellence and research capacity, supports business development, and fosters community engagement in key areas of operation. It also helps build a technically proficient global workforce. Here are just a few graduates who have joined Chevron from partner schools.

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Left: Students at a Chevron-sponsored field camp.

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Post-Graduate Opportunity in Thailand

In 2009, Chevron Thailand and UPP committed $10 million over five years to establish a master's degree in petroleum geoscience at Chulalongkorn University (Chula) in Bangkok, Thailand – the first of its kind in the region. Funding provides specialist lecturers from internationally reputable universities, scholarships and research cooperation. Chevron's partnership with Chula helps fulfill a growing demand for petroleum geoscientists in Thailand.

Patcha Amonpantang, an earth scientist for Chevron Thailand (pictured left), was among the first graduates from Chula's petroleum geoscience master's program. She had been working with Chevron for three years when she began the program in 2009. She was given a year off from work to complete her studies.

"The petroleum geoscience program focuses on real work experience with many exercises based on real situations," says Amonpantang, who received her master's in 2010.

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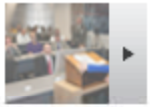

Scholarship Offers a World View

At Mississippi State University (MSU) in Oktibbeha County, Mississippi, UPP is a major sponsor of the University's Increasing Minority Access to Graduate Education (IMAGE) program. Chevron's sponsorship supports MSU's summer bridge program, which allows approximately 50 incoming minority engineering students to take a college-level course the summer before they enter college. Chevron's funding also provides scholarships to engineering majors to study abroad.

Justin Fisher received one of these scholarships last May to study in Italy, where he is pictured, left.

"This trip was the first time anyone in my immediate family had been outside the country," says Fisher, who graduated from MSU in May with a civil and environmental engineering degree and started with Chevron's Project Resources Company in June. "The only things we knew were what we read and saw on TV. Studying in Italy gave me a global perspective on things, and now I can say I'm more willing to travel or work abroad because of this experience."

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Scotland Scholarship Determines Career Path

At Heriot-Watt University in Edinburgh, Scotland, Chevron offers scholarships and provides textbooks to mechanical, chemical and petroleum engineering students (they call it the "Chevron" textbook).

Daniel Bissett – a drilling and mechanical engineering graduate from Heriot-Watt – was the first recipient of a Chevron scholarship through UPP in 2009. He later applied and was accepted for a Chevron internship. Shortly after his internship ended, he was offered a full-time position with Chevron Upstream Europe in fall 2011.

"Getting the scholarship was the first time I thought about a career in the oil industry," says Bissett, who now works on Chevron's P02 Field in the Dutch sector of the North Sea. "I then applied for an internship, which helped me grow as an engineer. It made me a better student and gave me a lot of confidence when I went back to University."

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Supporting Leading-edge Research in Australia

In December 2011, UPP partnered with the Australia business unit to formally endow the Chevron Chair in Gas Process Engineering in perpetuity at the University of Western Australia (UWA). Professor Eric May (pictured) holds the position, which includes the Chair, two postdoctoral appointments and two doctorate scholarships in gas process engineering at UWA. Chevron had previously funded these on a yearly basis since 2008. The endowment supports Chevron's overall goal to build local engineering capability to develop Western Australia's world-class assets, such as Gorgon and Wheatstone.

Chevron employees Debra Kirk (center) and Sesilia Siauw (right) were fortunate to get involved in May's early research in gas process engineering.

"Professor May is doing groundbreaking work, advancing how we process gas for sale," says Siauw, a process engineer.

"I went through the program before it was formalized," says Kirk, a facilities engineer. "I am pleased to see that the Chair and the Gas Process Engineering program are now formal areas of study, thanks to UPP's investment."

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Lab Advances Research Opportunities

This spring, Louisiana State University (LSU) opened its new state-of-the-art Reservoir Characterization Lab, thanks to a generous grant from Chevron's UPP program. The new facility allows students, teachers and researchers to perform oil and gas reservoir modeling using the most advanced computers and visualization software.

This latest gift is part of Chevron's legacy of support for LSU via the UPP program. Jaime Glas, who graduated in May from LSU with degrees in international finance and petroleum engineering, spoke about that legacy during the lab's opening (see photo, left).

"After three years working for Chevron, it's been my experience that this company truly understands what students value in terms of a solid technical foundation coupled with real-life industry exposure," says Glas, who held Chevron internships and began her full-time job in June as a petroleum engineer with the Mid-Continent business unit in Houston. "The Chevron Reservoir Characterization lab is a perfect example of marrying these fundamental ideals."

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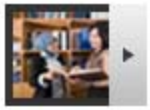

Where Learning Comes to Life in Indonesia

From establishing a new petrophysics lab to providing scholarships to students to earn post-graduate degrees in petroleum and chemical engineering, UPP has forged a strong partnership with the leading technology school in Indonesia – Bandung Institute of Technology (ITB). The partnership enables students to extend their learning beyond books and get working knowledge in their chosen field.

"The UPP program at that time really helped by giving me a chance to apply the theory I learned in college into real work," says Yunia Syaffitri (on left in photo), an ITB graduate and geochemist with Chevron Geothermal Salak.

"I got a lot of benefits from UPP," says Sheila Anastasia Harryandi (right), an ITB graduate and geophysicist with Chevron Indonesia Company. "I learned to work professionally as a geophysicist in the industry, and that helped me understand the main purpose of every class I attended. Even if I hadn't been hired by Chevron, I already learned so much it would have helped me in my career."

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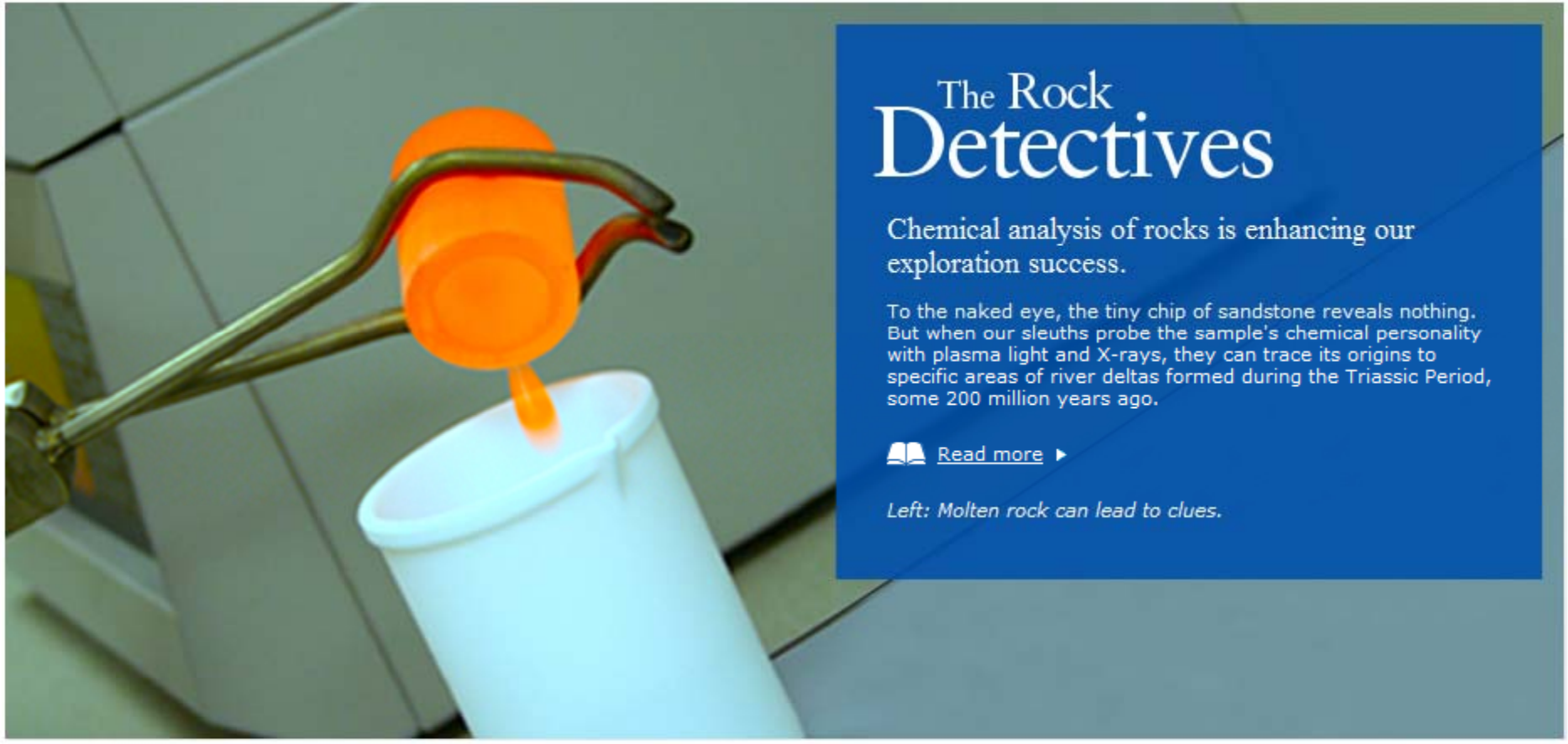

The Rock Detectives

Chemical analysis of rocks is enhancing our exploration success.

To the naked eye, the tiny chip of sandstone reveals nothing. But when our sleuths probe the sample's chemical personality with plasma light and X-rays, they can trace its origins to specific areas of river deltas formed during the Triassic Period, some 200 million years ago.

Read more ▸

Left: Molten rock can lead to clues.

The Rock Detectives

1. *Select Fragments*
To profile the chemical makeup of rocks, a technician selects 200 tiny fragments – or drill "cuttings."

In this lost world, silt and organic matter accumulated across a steamy, sprawling landscape, giving rise to giant natural gas fields now buried thousands of feet beneath the ocean floor.

Chemostratigraphy is an obscure branch of geologic forensics now being combined with seismic surveys, fossil markers and other traditional exploration techniques to help us better understand the subsurface and locate energy resources with greater accuracy. The method is helping us to ensure that major new projects in Australia and the Middle East will produce as much energy as possible.

"Rocks are made of minerals, and minerals are made of elements," explains Paul Montgomery, a Chevron geologist and expert in chemostratigraphy, which employs plasma spectrometry to scan for traces of 50 elements. "We're familiar with some, like potassium, less familiar with others, such as yttrium, niobium and zirconium."

A recent, major survey for Chevron conducted by Chemostrat, Ltd., for example, collected and scanned some 1,500 samples from eight wells — yielding a total of 75,000 element profiles. The work requires technicians to painstakingly gather, wash, sort, label, crush and heat the samples for the spectrometer to measure the light wavelengths that reveal the unique chemical profiles of different rock layers.

"It helps us correlate oil and gas reservoirs across hundreds of miles," says Montgomery. "With that, we can better understand what we might find when drilling in any direction and how the reservoirs will behave and express themselves."

The Rock Detectives

Integrated with other techniques, chemostratigraphy is becoming an especially valued tool for understanding the gas-rich Mungaroo Formation beneath the Indian Ocean off northwestern Australia. Tapping this enormous, subsurface frontier, the Chevron-led Gorgon and Wheatstone projects will provide future supplies of liquefied natural gas to help meet fast-rising Asia-Pacific demand.

For all its potential, the complex Mungaroo lacks the clear fossil markers typically found in deepwater oil and gas zones, so it's tough to link wells to energy deposits. Geologic correlation here is like trying to picture an entire castle from within a single room, said Montgomery. Some gas zones flow much better than others do. Wells must avoid pockets of water. Much more than elsewhere, Chevron needs chemostratigraphy to optimize Australia's largest-ever industrial projects, forecast to cost nearly $70 billion.

"Seismic surveys yield imperfect information on how the reservoirs are connected, and chemostratigraphic techniques can greatly enhance our understanding," says Montgomery. "It's critical to the long-term performance of these deepwater gas fields that we drill just the right number of very large wells at precise locations and depths. We need these wells to run for 30 years."

Chemostratigraphy also provided new insights on the mammoth First Eocene oil reservoir at Wafra in the Partitioned Zone between Saudi Arabia and Kuwait, where Chevron is targeting billions of barrels of potentially recoverable oil with steam-injection technology. Here, chemical fingerprinting helped confirm a geologic profile built from alternative data, demonstrating that chemostratigraphy, coupled with other techniques, can provide the robust and detailed stratigraphic correlation needed for a successful Wafra steamflood.

2. *Grind and Mix*
Using a pestle to prevent contamination, a technician grinds the drill cuttings for mixing with a chemical solution that "digests" the powdered rock, creating a sample.

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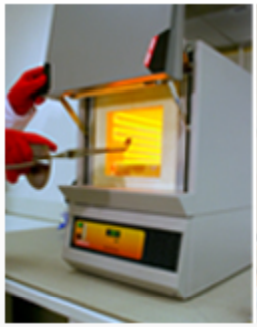

3. *Melt and Mix*
After melting, the sample is poured into nitric acid, creating a solution for analysis with a spectroscope to reveal the elements in rocks of varied ages from different locations.
4. *Analyze*
Charts knit together the clues, helping geoscientists link rock layers to find, delineate and develop oil and gas deposits.

In the United States and Eastern Europe, chemostratigraphy will help Chevron develop new supplies of gas from shale, a dense rock that is difficult to analyze using fossils. Oil and gas projects in Angola, the U.K. Atlantic Margin and other locations have also benefited, says Montgomery. "Everywhere we've used this technology, it has added to our success."

Mapping geology with mineral clues such as color isn't new, but in the past decade, better, faster spectrometry has made chemostratigraphy a more accessible and affordable tool, he explained. Still, the surveys require precise, orchestrated efforts, from the drilling rigs to the laboratories and technical centers where geoscientists interpret the mineral DNA.

It takes months of work – not surprising, given the formidable puzzles our geoscientists must solve. In the Mungaroo, for example, shales leaked oil and gas into a vast, multi-tiered sandstone sandwich. Huge sections slide up and down, creating a jumble of fault blocks and pinched-out layers.

Fortunately, Mother Nature left her chemical fingerprints to help us figure out how best to develop a vast storehouse of Australian gas—and no doubt, many other energy treasures in the years ahead.

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Chevron

10 Reasons We're at Home in California

Our roots are deeper than you might think.

In California, we are the state's top crude oil and natural gas producer and operate two of the largest refineries on the U.S. West Coast. We drive energy innovation, create jobs and invest in our communities. From our support of early aviators to today's small businesses, we have been creating value for California. Here are 10 reasons why.

View Animation ▸

Left: The Golden Gate Bridge – a California icon since 1937.

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10 Reasons We're at Home in California

1 It's been our home for more than a century.

As the only integrated oil company based in California, Chevron's headquarters have been here for 133 years: We were founded in 1879 under our earliest predecessor, the Pacific Coast Oil Company (PCO). John D. Rockefeller's Standard Oil Company acquired PCO in 1900, and in 1906 it became Standard Oil (California.) In 1984, Standard Oil and Gulf Oil merged, and the company changed its name to Chevron.

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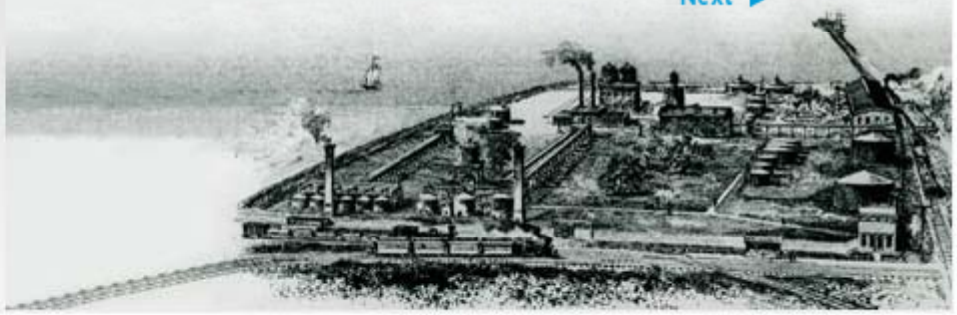

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10 Reasons We're at Home in California

1. It's been our home for more than a century.
2. We made California an energy-producing state.
3. We've helped keep California on the move for more than 100 years.
4. Our fuels have helped to make history.
5. We're still fueling progress through our major refineries.
6. We employ 10,000 and support about 60,000 other jobs.
7. We're among California's leading technology innovators.
8. We're advancing energy efficiency in California.
9. We support communities and invest in the next generation.
10. We keep producing – efficiently, safely and reliably.

2 We made California an energy-producing state.

Pacific Coast Oil developed the first commercially producing well in California in Pico Canyon, an area north of Los Angeles, making California an energy-producing state. Today, Chevron is California's top oil and gas producer, averaging 166,000 barrels of oil and 83 million cubic feet of natural gas in 2011. More visible today, though, are our 1,500 branded Chevron and Texaco stations in the state.

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10 Reasons We're at Home in California

3 We've helped keep California on the move for more than 100 years.

Even by 1911, Standard supplied about 71 percent of the gasoline market. Today, our refineries produce some of the cleanest-burning gasoline in the United States (with our engine-cleaning additive, Techron), and we fuel around one-in-five vehicles in California, which has some of the world's largest markets for transportation fuels.

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4 Our fuels have helped to make history.

Standard Oil demonstrated an early commitment to the aviation industry, providing fuel to pioneers Amelia Earhart and Charles Lindbergh. On sea, our Richmond Refinery fueled military ships fighting in World War II and Vietnam. Today, Chevron is still a leading producer of marine and aviation fuel, producing nearly 80 percent of the fuel used at San Francisco airport.

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5 We're still fueling progress through our major refineries.

We have operated two of California's largest refineries for more than 100 years. Our first, at Richmond on San Francisco Bay, began operations in 1902. Our second refinery, named El Segundo - Spanish for "the second" - spurred the growth of the city, which was named after the refinery. Today it's the largest refinery on the United States West Coast with a crude refining capacity of 270,000 barrels per day.

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6 We employ 10,000 and support about 60,000 other jobs.

Chevron is a major contributor to California's economy. In 2011 we supported one-in-200 jobs in the state. As the state's largest taxpayer, we paid $1.1 billion in taxes to the state between 2009 and 2011. Since 2010, we've spent nearly $1.2 billion with small businesses - 28 percent of that has been with women- and minority-owned enterprises.

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7 We're among California's leading technology innovators.

California's great universities and labs help drive innovation and provide a strong workforce. We partner with government, industry and academia to meet energy challenges – for example, we are working with NASA's Jet Propulsion Laboratory to develop deepwater recovery technologies. We also invest in start-up companies specializing in energy and information technologies.

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8 We're advancing energy efficiency in California.

Chevron Energy Solutions is one of the largest installers of solar power in the U.S. education market and has developed hundreds of projects to increase energy efficiency and reduce energy costs for government, education and business facilities in California. Chevron has spent approximately $4.4 billion on renewable energy and efficiency since 2002 and expects to spend $2.2 billion between 2011 and 2013.

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10 Reasons We're at Home in California

9 We support communities and invest in the next generation.

Chevron launched the California Partnership in October 2009, an initiative to invest in education and economic development in our home state. Under the program, we have expanded our partnerships with nonprofits focused on supporting underserved communities, distributing $21 million in grants since 2009 to 45 nonprofits working to improve education, and for small business support and job training.

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10 We keep producing – efficiently, safely and reliably.

California still has significant resources of oil and gas. We have built up expertise in heavy oil production that has been able to create value for us in other heavy-oil-producing countries. At our Coalinga oil field – one of the oldest in the nation – we have established a solar-to-steam demonstration project, in which a field of mirrors directs the sun's energy to create steam that is injected into deep reservoirs, easing the flow of heavy oil to the surface.

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