

Trunkline

The magazine for Woodside people | Q3 2018



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On the cover

On the move: Members of our Legal team were among the first of 3000-plus Woodsiders to move into the company's new headquarters, Mia Yellagonga. Picture: James Campbell

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As Trunkline went to press, Woodside’s Perth-based staff were transitioning, in stages, to the company’s new headquarters at Mia Yellagonga.

They’re exciting premises for exciting times. The campus sets the scene for a new way of working as Woodsiders embrace the opportunities inherent in our growth horizons; opportunities that will deliver value well into the future.

Indeed, innovative, value-adding ways of working are evident throughout the business, as illustrated in these pages.

For example, the Karratha Life Extension project is enjoying the benefits of new technology and new work processes

delivering accelerated outcomes for maintenance schedules.

Meanwhile, a persistent and detailed investigation of a single-coat painting system has prompted a novel and very cost-effective approach to tackling corrosion.

We’re also embracing Sprints, intensive improvement projects resulting in speedy problem-solving.

In fact, this edition shows that the company’s pioneering spirit burns strong so it is fitting that it also includes a tribute to the two newest members of our Hall of Fame.

Read on to discover more.

Notes on Petroleum Resource Estimates: All petroleum resource estimates in this publication are to be read in conjunction with the Reserves Statement in Woodside’s most recent annual report, as updated by subsequent ASX announcements available at <http://www.woodside.com.au/Investors-Media/Announcements>. This publication may contain forward-looking statements that are subject to risk factors associated with oil and gas businesses.

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To the max: (from left to right); Linda McKay, senior operations reservoir engineer, and Maria Casadiego-Gonzalez, graduate petroleum engineer, discuss new well configurations to maximise production; another successful oil offtake on the Nganhurra FPSO; Linda discusses production optimisation opportunities onboard the Okha FPSO with production maintenance technicians Neil Cooper, Mark Rowe and Geoff Bradley.

Producing the Limit

The target for Operations is clear: 100 MMboe (million barrels of oil equivalent) in 2020.

It's the commitment we made to our shareholders in May 2018, and teams across the company are working hard and innovatively to deliver it.

"Reaching our 100 MMboe production target in 2020 is not only about bringing new projects on-stream," says Meg O'Neill, executive vice president and chief operations officer.

"It requires a sharp focus on ensuring all our assets are optimised, which we call 'Producing the Limit'. This is required to generate the cashflow needed to fund our growth projects."

"Producing the limit every single day starts with our reservoirs and ends in our facilities and plants downstream," explains Ian Sylvester, vice president Reservoir Management. "Through collaboration and continuous learning, we optimise our natural resource to ensure we can keep our production systems at maximum capacity."

It begins with Reservoir Management teams adjusting a multitude of variables to understand then improve the short and long-term performance of our wells and reservoirs.

"It can be a delicate balance," says Omer Albarzanji, operations reservoir engineer.

"To achieve maximum hydrocarbon production on any given day and preserve future productivity, we need to balance production factors. These factors include the right mix of hydrocarbons from different wells and the right production rates.

"We also need to balance things like power usage and water production, and account for availability and maintenance works."

This balancing act is managed daily across all production wells in what is called an integrated network.

In the North West Shelf (NWS) alone, more than 50 wells are routinely managed to find the optimum balance for maximum production. Producing hydrocarbons from wells at 100% capacity all the time is not practical because it could reduce the overall performance of a well and reservoir.

To help explain how an integrated network is optimised by adjusting factors, Reservoir Management devised a computer game, "Oil the Way to Awesome".

Launched at Woodside Week in December 2017, the game challenges participants to optimise production by changing variables in a computer simulation, and has received very positive feedback from Woodsiders.

"We've also taken it to students at the UWA Aspire Program," says Maria Casadiego-Gonzalez, graduate petroleum engineer. "It gives an insight into getting oil out of the ground and optimising production.

"Again, the response was very favourable."

Games aside, the task of Producing the Limit involves more than balancing a few variables.

Before we balance production factors, we need to predict how the resource will respond.

"Hydrocarbon reservoirs are natural resources, and nature is inherently unpredictable," explains Andrew Glucina, oil and Wheatstone subsurface manager.

"Before we make significant changes to how we operate the wells and reservoir, we like to be able to predict how the change will impact the desired outcome."



Unfortunately, predicting the response of a well or reservoir to any change in production factors is not an exact science.

“We have models to predict their response based on physical concepts,” Andrew notes.

“But those responses can change over time, especially as we deplete the resource. That’s why we need to routinely test those models to ensure they still reflect reality.”

And the best place to test is in the field, where production facility teams play a key role.

For example, in January, the Ngujima-Yin floating production storage and offloading (FPSO) facility worked with reservoir operations to test a number of factors which resulted in identifying a new way to optimise production.

FPSO asset manager Gerard Ransom and the FPSO leadership team balanced the risk of lower short-term production rates with the opportunity to improve rates and production performance in the longer term.

“The Operations teams worked together, across functions, to complete a series of trials to better understand the long-term performance of the reservoir,” Andrew recalls.

“We were supported from the asset manager through to the Operations superintendent, the offshore installation manager and the operators on board the facility to undertake the trials.”

The trial involved modifying actual

production conditions and collecting real-time data on how the well or reservoir was responding. With each new insight, the data was fed into the models to inform the next change.

The results demonstrated that more was possible from the resource.

Within only two weeks, the teams discovered a new way of operating the wells and reservoir that not only increased production but also mitigated fuel gas deficiency – a fantastic outcome.

“This was really a barrel-chasing attitude,” notes Andrew.

“It took willingness, science, clear instruction, planning and strong collaboration with the offshore team to safely make the idea a reality in a short period of time.”

There are other great examples of Producing the Limit success.

On NWS gas assets Angel, North Rankin and Goodwyn A, the reservoir operations team work collaboratively with the Optimisation and Production teams to maximise production potential and ensure maximum LNG production.

“On the NWS, small changes to our production conditions can have large impacts on our overall LNG production, particularly as our reservoirs drop off in potential,” explains Omer.

“In May, when a planned facility outage significantly reduced the flow of hydrocarbons, the asset and optimisation teams were able to identify and execute production

adjustments that avoided deferral of an LNG cargo.”

With the NWS gas reservoirs predicted to start declining below the maximum production capacity of the Karratha Gas Plant from the early 2020s (called “off plateau”), this type of Producing the Limit action will become increasingly critical to achieve our 100 MMboe target by 2020.

But the will is there and gaining momentum.

Strong collaboration across the business has delivered more than 100 optimisation initiatives on NWS this year alone.

They’ve ranged from adding productivity to maturing wells to minimising LNG deferral by strategically reducing planned well downtime.

Together with safe, reliable, efficient operations, and our growth projects, Producing the Limit is key to delivering more than 100 MMboe by 2020.

“As we come off plateau in the North West Shelf and become offshore constrained, we have an increasing need to anticipate scenarios where we will not be producing to the limit,” explains Reece Tonkin, production planning and market liaison manager.

“We will need to take action collaboratively across the business to maximise production performance.”

“Ultimately,” concludes Gerard, “it’s about people taking action and being given the space and freedom to deliver.”



Can do: Travis Baensch, coatings application subject matter expert, discusses Humidur with contractors Andrew Gray and Gary Stoa.

Coating benefits spread far and wide

Technology

breakthroughs don't have to be flashy to be impressive.

Sometimes great value can be driven by advances in low-technology areas.

"In technology, it would be easy to assume that big value opportunities will only come from big technology platforms – like NextGen LNG Trains or long subsea tiebacks – but this isn't always the case," notes vice president Technology Sean Salter.

"You mightn't expect a single coat painting system to have a big value proposition.

"But Humidur is a great example – first, of technology being applied into the production space; and secondly, how a seemingly small item has the potential to have a profound impact on how we do our business."

Which is why Woodside in September signed up as foundation buyer in Australia for a two-part epoxy coating called Humidur.

The contract signing was the result of a quick but penetrating investigation and negotiation, and it's set the scene for substantial productivity increases for the business.

Humidur is a coating product that can be applied with minimal surface preparation. Metals suffering corrosion might require no sandblasting but only minimal surface preparation before Humidur is applied.

Moreover, it's a one-coat system, so savings in application time are significant.

And it will last upwards of 15 years.

All of which has led to a new way of working in the fight against corrosion.

The value generated has particular significance in relation to the company's growth strategy for the Burrup Hub and extending the lifespan of our Karratha assets.

Technology development manager Geoff Byfield notes: "It's very easy to get attracted by the big solution to issues like, what does the next LNG train or offshore platform look like. Yet a very simple solution might have a huge impact.

"Humidur demonstrates that the Technology portfolio should have a spread of interests because there's value to be found across the technology spectrum.

"The trick is to recognise where this value lies, doing the hard yards and not limit investigations to the big, shiny stuff that could take a huge amount of effort and risk for a return that might not be commensurate."

The company's introduction to Humidur came in May last year when the coating was described to Woodside as a one-coat product good for up to 10 years, and with niche uses.

Production technology manager Darren Shanahan's ears pricked up.

Why 10 years and no longer? And why only "niche" uses?

"Darren didn't take what was presented, but challenged it," reports Geoff.

Mike Brameld, chief materials and inspection engineer and coatings technical expert, became involved. He, Darren and Travis Baensch, the company's coatings application subject matter expert, investigated and found the manufacturer was confident it would in fact last for 30 years.

"One of Humidur's main benefits is that much less surface preparation is required than usual, and preparation is where most of the cost lies, not the price of the coating itself," explains Mike.

Abrasive blasting is needed to return corroded metal back to a smooth state before most anti-corrosive coating can be applied, but Humidur can be applied directly to the metal where corrosion is not significant.

Plus, it can cure underwater and on hotter surfaces than normal so it can be applied in some instances before a turnaround is held.

“We saw enough to realise it had potential for us so we put a lot of effort into fully understanding the coating and its potential,” Mike relates.

Mike, Darren and Travis visited Humidur’s manufacturer, Acotec, in Belgium. They also spoke with fabrication supervisors in Scotland, and inspected a 4km-long LNG carrier jetty in Brunei where Humidur was being applied.

Technology, Operations, Maintenance, Engineering, Legal and Contracting and Procurement (C&P) worked together to devise an accelerated outcome.

C&P helped develop a business case for the product.

“This product is all about disruption,” says graduate C&P adviser Nem Stepanovic.

“It’s moved fabrication maintenance coatings from a consumable item, which we wouldn’t normally be very interested in, to a strategic item which the business has a key focus on.

“Typically, a coating is procured by our contractors and we would usually not know or get involved in quantities or price.

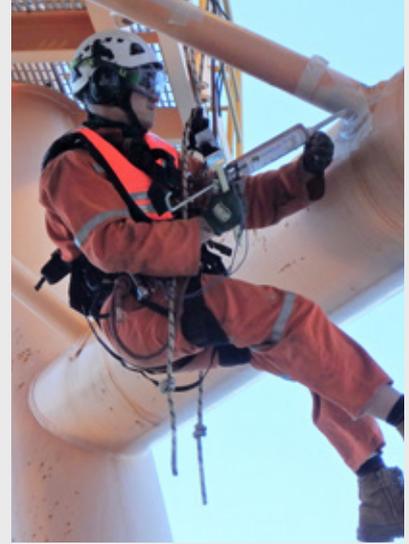
“But because there’s only one company that makes this product that has become a strategic item for the business, we wanted to deal directly with that company through a direct contract for a number of reasons.”

C&P manager Ben Ward adds: “We had to answer the question: does Woodside want to get involved in the supply chain for this product?”

Woodside landed on a model which involved the company becoming a foundation customer directly with Acotec and free-issuing it to contractors for maintenance services. Mike signed off on Humidur’s technical suitability in August, and the foundation purchase contract was signed only a month later.

Acotec chief executive officer Wim Schalley, in Perth for the signing of the framework contract, says: “The negotiations with Woodside were very frank, open and straightforward – and compared to those with some of the oil majors, they were very fast.”

Talks centered on the performance of the product, sales support and Wim said Acotec had established a company in Australia to assist in sales, servicing and product development.



Find and fix

The business has already started to use Humidur, including at Karratha Gas Plant, the Okha floating production storage and offloading (FPSO) facility and on the Ngujima-Yin FPSO refurbishment.

Its properties allow new and faster ways of working, reducing the need for paperwork and cutting time without impacting on safety.

“We now have an enabler to do ‘small fixes’ which needs very little surface preparation, arrests corrosion and which will give us both savings and process safety,” says Greg Howie, maintenance team leader.

Traditionally, inspectors inspect, report and create repair notifications in SAP where they wait for planned maintenance.

“We might not get to it for a year or two,” says Greg.

Now, a “find and fix” program is being initiated whereby trained Humidur applicators are working in tandem with inspectors to coat corroded areas as they’re found.

“Currently we have to come back three times – primer, mid coat and top coat – but with this product, only one coat is needed,” he adds.

Brad Gildersleeve, painting coordinator with the FPSO fleet, points out another advantage.

“It dries and cures in no time and it can be used in applications where higher operating temperatures are required,” he says.

“The reduction in time that’s lost taking a tank out of commission will be huge.”

Extensive training of applicators is now underway at Karratha and offshore.



Contract signing: Darren Shanahan, Acotec's Wim Schalley and Philip Starr, and Ben Ward discuss the coating, which has already been applied (top right) at several of our assets.

‘Goldilocks’ solution bears fruit

The Brownfields Projects team has successfully repaired a potentially costly defect with an innovative solution that involved welding on a live condensate line.

Piping technical integrity custodian Roger Munro says the scope was one of the most difficult to have arisen during the Karratha Life Extension (KLE) program.

A routine inspection of pipelines from the fractionation trains at Karratha Gas Plant (KGP) to Condensate Tank 2 uncovered an Area 4 defect. An Area 4 defect is a high form of corrosion and means the wall thickness of the pipeline has reached 1.8 mm or less. Moreover, the section of pipe affected was buried under Road 12, making access extremely difficult. Maintenance crews removed a concrete embankment and, as a temporary repair, put a Furmanite clamp over the pipeline.

“Such a repair has to be inspected every two years,” explains project engineer Clint Brown, “so it couldn’t be buried under concrete again.

“Further, the life of a clamp is typically no longer than 10 years, so we had to find a permanent solution so we could re-bury the pipe to meet end of field life.”

Implementing an “isolation” by shutting down the condensate flow and welding in a new pipe section was found to be impossible without total plant shutdown.

“Normally, the lines can be isolated and be made hydrocarbon free, which provides options but in this case, even when the valve was fully closed fluids were still flowing through,” Roger explains.

“So if the clamp were removed you could be faced with a loss of containment.”

Discussions to solve the problem involved Operations, KLE, welding subject experts and contractors.

“We initiated an ALARP (as low as reasonably practical) process to weld on the live line,” says Clint.

It was decided to leave the clamp on the pipe and install a welded “oversleeve”.

But first a full-scale mock-up trial was staged at KGP to simulate site conditions and prove the welding integrity and that there wouldn’t be any welding burn through the pipe.

“The mock-up trial also verified the welders’ competence and confirmed the welding heat input was in the ‘Goldilocks Range’ – not too hot and not too cold,” reports Andrew Gagg, senior project engineer with WorleyParsons.

Roger was satisfied that the process would be of negligible risk and the procedure was approved.

In all, six metres of live line welding was safely completed – right first time and on time, and with no impact to production.

After the oversleeve was installed it was treated with anti-corrosion coating and the line was reburied.

Clint says the repair was a great example of collaboration between Woodside, WorleyParsons, the clamp manufacturer TEAM (formerly Furmanite) and the implementation co-ordinator – a joint venture, between UGL Operations and Maintenance and Cape Australia Onshore, known as UGL|Cape Joint Venture.

Andrew agrees that comprehensive preparation and close collaboration between Woodside and contractors lay behind the success to implementing the unique solution.

Senior vice president Projects Mike Robinson notes the solution was a great example of an improved way of working.

“Collaboration by multiple parties drove novel thinking and quality execution to deliver an outstanding outcome,” Mike says.

“It has enormous value-add potential to the business via reducing risks and impacts to the plant, as well as lowering costs by applying this repair method to other defects.”



Clamp revamp: Contractor Andrew Gagg, project engineer Clint Brown and piping engineer Roger Munro discuss how to remedy corrosion on a pipeline that is difficult to access, resulting in the safe execution of live line welding (right).



Take a tablet: New technology, a new coating and a new way of working are reaping benefits in the Karratha Life Extension program.

New fix for ageing problem

Technological

advances, new coating products and a new way of working have created big productivity gains in the fight against external corrosion – and Karratha Life Extension (KLE) is reaping the benefits.

“We’re taking a step change in our external corrosion strategy at Karratha Gas Plant (KGP) thanks to those three pillars,” says brownfields general manager Ty Chapman.

“We’ve gone from what was a very bureaucratic paper-based system to a site-enabled paperless system, without sacrificing quality or safety along the way.”

Age and weather have taken their toll on kilometres of process pipework at KGP.

These pipes are checked for corrosion, then evaluated by Engineering to confirm the impact the corrosion has had on pipe fitness for service, before remedial action is determined.

Traditionally, that process has involved inspections and scopes that were drawn up by Engineering offsite (in Perth or India).

Paper-based workpacks (field instructions) were created offsite, where they were checked and verified before returned to KGP for implementation.

Scaffolding is often required for

inspection and repairs – which often involves encapsulation, sandblasting and painting – before being dismantled.

But all this is changing, thanks to:

- New software for field-based tablets
- New coating products
- New ways of working

Software provider Silverhorse has been working with Brownfields and Digital for more than a year to develop a new software interface for tablets which allows inspectors on site to examine 3D models of the plant.

“The tablet technology enables inspectors to record defects on 3D models, determine repair strategies, conduct fitness for service calculations and escalate engineering issues – all via the tablet without returning to the office,” explains Ty.

“Creating workpacks which once took up to 30 hours can now take as little as five minutes because work packs for inspection and repair are created within the tablets.”

At the same time, Woodside is switching to new coatings, such as Humidur, to tackle corrosion. Humidur does not require extensive engineering solutions or sandblasting before application and can be applied in one coat by applicators working from ropes.

“New tablet technology plus Humidur has enabled us to change the way we’re working and the benefits have started flowing,” says Ty.

“We’re moving from an engineering-led approach to a construction-led approach by empowering capable people on site to make the decisions.”

He credits senior external corrosion project engineer Hennie Engelbrecht for driving the work on tablets; and program manager Ehab Zabaneh, together with senior project engineers Peter Ashton and Michael Watson, for driving the “new way of working” strategy.

Ty recognises Woodside’s contractors played key roles in the new way of working trial, which was implemented in the Fractional Plant pipe rack.

The upshot of that trial? Impressive savings in time.

“Empowering site-based decision making, utilising new technology in the tablets, the use of new coating products and the reduction of scaffolding requirements using rope access improves our execution efficiency and accelerates the reduction of external corrosion risk at KGP,” Ty says.

The trial has underpinned confidence in the new way of working, and a team is being created to deliver it to all areas of KGP.

Buoyant future tipped for hydrogen

The world's future lies in clean energy and Woodside intends to be at the vanguard of its supply through hydrogen.

The Hydrogen Council forecasts the hydrogen market currently worth \$120 billion annually could expand seven-fold by 2050.

Under head of commercialisation Shannon O'Rourke, commercialisation managers Andrea Galt, Nancy Nguyen and Sussan Johnson are examining potential markets and developing links in Korea, Japan and Australia.

"Woodside's business is the bulk supply of energy; we specialise in liquefied gas and have great relationships with energy customers across Asia," Shannon explains.

"Hydrogen is just such a natural fit. We're aiming to position Woodside as an exporter of renewables and hydrogen to future-proof our business."

The company's drive towards a lower carbon future through integrating renewables and battery storage paves the way for exploring options for hydrogen production.

It can be produced either from gas via a process called steam methane reforming (also known as "blue hydrogen") or via electrolysis using renewable energy to split water into hydrogen and oxygen ("green hydrogen").

And it can be transported in liquid form, ammonia or via chemical hydrides.

"Green hydrogen is the holy grail and if people want green hydrogen, we're happy to deliver," says Shannon.

"But currently, the best way to export hydrogen is via LNG.

"We'll start in the end markets first, then as we scale up, we'll drive down costs and begin exports by 2030."

Woodside is currently working with industry in Japan and Korea to help meet emissions reduction targets.

Nancy points out that Japan, which is at the forefront of hydrogen technology, has released a world-first strategy to change the country's energy mix and build a hydrogen society.

"Japan is working to showcase its capabilities at the 2020 Tokyo Olympics," she says, adding Woodside intends to form alliances with Japanese companies to advance our knowledge of hydrogen.

Andrea says Woodside has signed two non-binding memorandum of understandings (MOU), one with KOGAS and one with Pusan National University in South Korea.

"Around the world, 26 car makers are looking at hydrogen-powered vehicles, and Hyundai, Toyota and Honda already have models on the market," Andrea says.

Hydrogen is also of growing importance in Australia.

In Victoria, Kawasaki Heavy Industry has kicked off the first liquid hydrogen export pilot project converting brown coal into hydrogen for power generation in Kobe, Japan.

In August, Woodside presented at the Renewable Hydrogen Conference in Perth about the economic transition to hydrogen.

"The ACT Government has ordered 20 hydrogen-powered cars and delivery is expected late this year or early next year as the cars go into production in November," says Sussan.

With a range of between 600 and 800 km, and steam the only emission, hydrogen-powered cars offer clear advantages over battery-powered vehicles.

One current hurdle is the high cost of establishing infrastructure to fuel vehicles.

But that hasn't stopped the early adopters with Anheuser-Busch ordering 800 hydrogen-powered trucks and Walmart converting more than 50 distribution centres to use hydrogen-powered forklifts.

"The future is buoyant for hydrogen and Woodside," says Shannon.



In the driver's seat: Shannon O'Rourke, Andrea Galt, Sussan Johnson and Nancy Nguyen are examining markets for hydrogen, including the car industry.

Four pillars support new strategy

Employing technology to generate competitive advantage is part of Woodside's DNA.

After all, Woodside built the first LNG plant and the first normally unmanned offshore platform (Angel) in the southern hemisphere.

To ensure we maintain a competitive advantage, an updated technology strategy was approved in Q3 2018 by the company's Board of Directors.

Formerly, the technology strategy focused predominantly on technological developments which would reduce exploration cycle time or lower the cost and increase performance of new assets.

The revised strategy rests on four priorities or pillars:

- Conventional oil and gas technology
- Intelligent assets
- Carbon solutions
- New energy

With conventional oil and gas technology, the goal is to reduce costs, reduce the time taken from discovery to ready for start up (RFSU) and improve productivity in operations.

"Our base business is our bedrock and we must ensure we continue to strive for breakthroughs," says Sean Salter, vice president Technology.

"Technology can help in all three areas."

Sean says it is especially important now for the Burrup Hub and the company's growth strategy success, which he describes as a game-changer for Woodside.

The importance of the Burrup Hub was one of the internal drivers for the updated strategy.

But the new strategy also reflects external drivers, including so-called mega trends and technology trends.

Mega trends include factors such as the world's increasing demand for energy, and the global desire for lower carbon emissions.



Firm foundations: Voula Terzoudi, Elena Mavrofridis, Ben Wilkinson and Sean Salter have embraced the four pillars of Woodside's new technology strategy.

Technology trends include the Internet of Things (IoT) and the digital revolution.

"Both trends can produce opportunities for us so we keep a watching brief on them using economic scenarios generated by our Business Climate and Energy Outlook function, and technology forecasting and scenarios generated by CSIRO," Sean explains.

This has led to three new strategy priorities: intelligent assets, carbon solutions and new energy.

"We've been monitoring these trends and we're now confident they offer sufficient opportunity value for us to actively engage with, rather than maintaining a watching brief," Sean says.

Adopting such priorities constitutes a significant shift for Woodside because they do not represent traditional areas of interest for an oil and gas company.

And because they lie outside our traditional experience, we will have to adopt new approaches to make collaboration effective.

Intelligent assets combine developments in data science, the IoT, robotics and artificial intelligence.

On carbon solutions, the focus is now on accelerating the use of technology to manage our carbon and greenhouse gas emissions using carbon abatement technologies.

This will complement conventional oil and gas technology focused on reducing emissions or transforming those emissions into value-adding products.

And new energy is part of Woodside's transition to a supplier of low carbon energy in a way that adds value to shareholders.

"The world needs cost-effective energy that is mobile and globally tradeable," Sean explains.

"This makes hydrogen an interesting alternative fuel source, and Woodside can leverage our base business, our operational experience and capabilities very effectively here."

Deep dive

on subsea savings

Last year Woodside took the plunge on a new approach to the inspection, maintenance and repair (IMR) of its underwater assets.

Instead of having a full-time chartered vessel supporting subsea maintenance campaigns, it shifted to a model in which contracted vessels would be used as and when needed.

In the first 12 months, more than 40 scopes on 132 operational days, involving 94,000 offshore work hours, were completed without any significant health, safety or environment incident and with a substantial reduction in costs.

Lewis Kemp, general manager Subsea and Pipelines (SS&PL), says: "We've banked savings and added value."

He credits an innovative contracting strategy as well as the enthusiasm and commitment of the team at Fugro, which has taken on much of the IMR scope.

With the eight-year contract for Nor Australis (which was a full-time chartered vessel) finishing in 2017, the SS&PL team investigated what might follow: a contract extension, another vessel or another option.

"The Nor Australis was fantastic for us but we're progressing and it made sense to change the model," says IMR manager Paul Ulyett.

So David Thain, production delivery manager SS&PL, investigated a campaign-based IMR model with multiple contractors.

That meant better maintenance planning because a vessel wouldn't be available 24/7.

David notes: "The new model forced us to leverage integrated activity planning to get the best value out of the contracts. We've been able to deliver excellent service to the business without the added costs associated with exclusive vessel charters and we've completed work we hadn't even anticipated would be possible."

The extras?

For one unplanned intervention, a more capable vessel was supplied at no extra charge to improve efficiency and reduce risk.

A more regular benefit is Fugro's technology, giving access to live streaming from its two remotely operated vehicle (ROVs).

That has enabled Woodside's technical experts to view from Perth real time subsea video feed, allowing them to immediately assess issues and accelerate decision-making.

"Thanks to the co-operation of Fugro,

we're accessing their technology to deliver solutions, not only for today but the future," says David.

Fugro's director asset integrity Chris Eastwell says: "Internally, we hold up the Woodside IMR contract as a beacon of what collaborative contracting can look like."

Gerard Ransom, asset manager floating production storage and offloading, says he's not the least surprised by the successful transition of models. "SS&PL has consistently shown it is business focussed and has earned the trust of the organisation," Gerard explains.

NWS Gas asset manager Paul Finch says SS&PL has achieved "amazing things" this past 12 months.

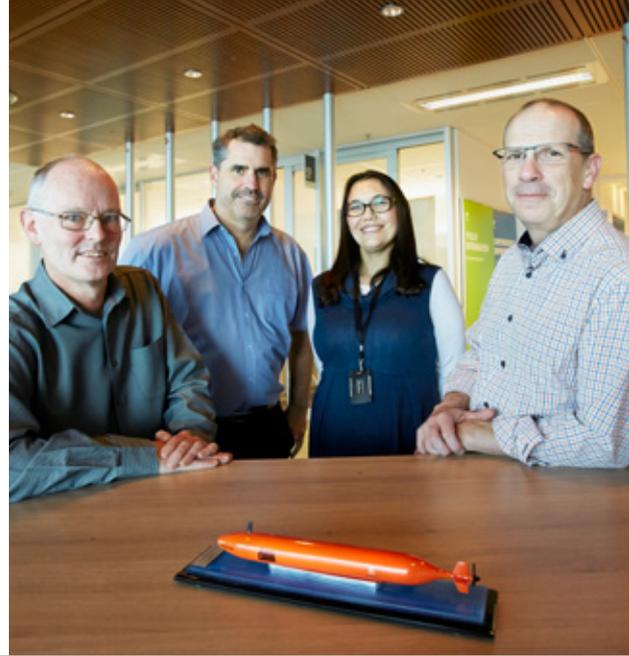
"That includes responding to an AP4 choke module failure and returning the well to service 11 days ahead of a very challenging target of 40 days," Paul reports.

Vice president Australia Operations Phil Reid says: "A few years ago it was hard to imagine how we could possibly operate without the Nor Australis, but the change of model has been much smoother than expected."

Phil says it is great to see SS&PL's idea, hatched in the early days of integrated activity planning, coming together so well.



Ocean view: Woodside experts can view from Perth, in real time, a subsea video feed of inspections, allowing them to immediately assess issues and accelerate decision-making.



Fast four: Mike Bowler, Lee Woolhouse, Rita Pinheiro and David Barker worked quickly to secure the Seabed Constructor and its multiple autonomous underwater vessels (left) to aid a geophysical survey for the Scarborough Development.

Speeding up Scarborough

Quick action by Woodside's geotechnical operations (GTO) and Contracting and Procurement (C&P) teams has resulted in accelerated provision of essential geophysical survey data to the Scarborough Development.

GTO became aware that Ocean Infinity's vessel the Seabed Constructor would be docking in WA before commencing a charter.

GTO inspected the vessel and discovered it boasted seven autonomous underwater vehicles (AUVs) and a suite of cutting-edge supporting technologies.

The potential to use this capability to collect geophysical data far quicker than conventional mapping expeditions was clear; the challenge was to mature the opportunity into one that was technically and commercially attractive to Woodside.

GTO and Ocean Infinity discussed how the multi-AUV capability Seabed Constructor could best be customised for our survey needs for the Scarborough Development, some 375 km west north-west of the Burrup Peninsula.

"It's the only vessel that offers multiple AUVs and it offered us a step change in survey technology," says survey operations manager Mike Bowler.

"We have a very tight deadline to deliver data for the front-end engineering and design (FEED) by the end of this year and we identified Seabed Constructor's visit to WA as a chance for us to get ahead of the curve in delivering the right data quickly."

Senior surveyor Lee Woolhouse says C&P initiated accelerated negotiations with Ocean Infinity before the Seabed Constructor left the region.

Exploration C&P manager Lee-Ann Pereira says: "An agile and accelerated C&P process is critical to take advantage of market opportunities as they arise.

"The team did an excellent job of fast-tracking the process while addressing all contractual delivery requirements and ensuring contractual and commercial risks were managed."

After the Seabed Constructor had completed the contract which had brought it to WA, it sailed directly to Dampier. It then conducted a survey of the field area and proposed trunkline route for the Scarborough Development.

"Traditionally AUV surveys are conducted with one AUV in a supervised mode," says Lee.

"With up to six AUVs in the water, Ocean Infinity operated the fleet in a fully autonomous mode.

"And because they travel about 70 metres above the seabed, the AUVs compile a high-resolution bathymetric data."

The survey amassed a significant amount of data, with many terabytes of raw data being acquired during the operation.

This data has enabled the earlier assessment and selection of a preferred trunkline route from the Scarborough fields and supported pre-FEED engineering to provide confidence in the feasibility and the cost of building this important asset.

"In total we surveyed about 6800-line kilometres and while doing so provided preliminary data back to shore," says Lee.

"And the speed with which they delivered the data allowed our engineers to make real-time decisions about the trunkline."

In addition, the highly versatile Seabed Constructor, which is equipped with two remotely operated vehicles (ROVs), conducted environmental inspections for Woodside.

Mike says there were a number of "firsts" with the survey, including the real-time route selection for the proposed trunkline.

Sprinting to solutions

They're called "Sprints" but this new way of embedding a culture of Continuous Improvement is here for the long haul.

Sprints are focused, two-week improvement projects that are driving productivity increases by changing the way Woodsiders assess (and then solve) problems.

Those closest to the problem are taken out of their day-to-day roles so they can analyse the issue, prioritise opportunities and then implement the top opportunity.

"Sprints are deliberately line-led because we want the people closest to the problem – the ones who feel the pain – to solve the problem," says Michael Richards, continuous improvement (CI) lead.

"If people discover the problem and develop the solution, they own the solution" adds CI specialist Daniel Joubert.

Maintenance manager at Karratha Gas Plant (KGP) Sean Bruyns is credited with seeing the need to dedicate someone to drive change at KGP in 2017 and Michael and Daniel were called in to lend support.

"Sean wanted a sustained cultural transformation in terms of achieving

outstanding performance using an enabled CI culture," explains Michael.

"The Sprints are a tool to getting us there. At the end of the two weeks, we want to have moved the needle – to do something very different.

"People go into the Sprints thinking about the world a certain way and they leave thinking completely different. The way their brains are wired is different when it comes to problem solving."

Sprint groups are between seven and 10 strong. The methodology used was developed in-house and refined over the first three Sprints.

"Daniel and I adapted it to suit what we need, and then we facilitate the Sprint as coaches," says Michael.

Daniel stresses the methodology used on Sprints is very disciplined which leads cross functional teams through a process to discover causes of waste pain – which leads to identification of opportunities to improve.

"Collaboration is the foundation of acceleration and the sprints focus on working across functions enabling the required collaboration," he says.

Three Sprints have tackled the streamlining of maintenance workflow so the right maintenance jobs can be done on time.

"If you want something fixed at KGP you need to log into SAP and raise a maintenance work request called a notification," recounts Michael. "These are assessed and prioritised in Notification Approval Meetings and we used to hold 11 of these meetings every day.

"But despite spending 3000 hours on such meetings, we weren't keeping up."

The Sprint tackled the problem and came up with a solution which included reducing the number of daily approval meetings from 11 to three, as well as standardising the way they were run and including the right attendees.

The result? The average "age" of an unapproved notification has fallen from 145 days to four; and the average time to approve a notification has dropped from 22 days to one and a half days.

As for overdue notifications: "That figure has fallen from 651 to zero," Michael reveals.

"Maintenance team lead Anthony Streeton and his team have solved what was considered unsolvable."

Tracy Jones, vice president performance excellence, notes the examples of Sprints all relate to KGP. "The same outcomes would apply across the business," Tracy says.



Fast and focused: Daniel Joubert (far right, front row) joined the team that drove the KGP scaffolds Sprint.



Testing the waters: The RiverLab facility and Woodside test a new way of installing large subsea structures using models on the Swan River; (right) UWA students Jeremy Lee and Calvin Lee and subsea installation engineer Ben Witton discuss the findings.

Making waves

There appear to be few similarities between the waves of the shallow Swan River, meandering gently through Perth, and the often-torrid deep waters off tropical North West Australia.

In fact, where the Swan River passes Claremont is an ideal spot to perform tests to benefit the company's offshore operations.

The research is being conducted at the RiverLab facility, part of the FutureLab collaboration between Woodside and the University of Western Australia (UWA).

"The wave conditions at this section of the river represent the North West Shelf pretty accurately at a scale of about 1:50," says Subsea and Pipelines technology lead Martin Davies.

"It means that ideas can be tested not only in realistic conditions but at a much lower cost than if we resorted to using expensive wave tanks – which are located outside WA."

And with about 81% of our oil and gas production deriving from subsea developments, any improvements are likely to have a major impact.

One area currently under investigation is the deployment of large subsea structures such as manifolds and subsea pumps on to the seabed.

"These structures can be the size of two double road trains and they

can weigh as much as 10 such vehicles," explains Ben Witton, subsea installation engineer and Woodside's co-ordinator for the project.

Not surprisingly, this requires mobilising some of the largest construction vessels in the world – and that comes with significant expense.

So Woodside has been collaborating with UWA and US-based company Safe Marine Transfer (SMT) for the past couple of years to investigate a cheaper method of installation using SMT's Subsea Shuttle concept.

The research shows that a ballastable barge – an empty barge which is flooded for installation – is both practical and technically feasible and would generate substantial cost savings.

Using buoyancy to install structures is well understood. But using buoyancy becomes less attractive as water depths increase, due to the extreme water pressures and safety risks associated with high pressure air.

Ben says the Subsea Shuttle cleverly avoids these problems by using air ballast only during the tow stage.

"Once in position, the barge's main tanks are flooded and solid ballast in separate columns is used to provide stability and control of the installation in conjunction with weighted tether lines held by installation tugs," he explains.

"This means that the barge can be built using relatively cheap and simple steel fabrication methods."

To showcase the solution, a demonstration was organised in July on the Swan River.

"We wanted to show those involved in deployment of subsea structures and those who operate construction vessels that this system represents a step change," Ben says.

"We hope they will rise to the challenge and collaborate with us and SMT to bring this research to reality."

SMT principal Art J. Schroeder Jr. says: "Woodside has provided the underlying pull or defined need for the technology's development and UWA has provided additional validation of the design with numerical modelling and offshore demonstration of a scale model unit."

He says the scale model performed as predicted from previous computational fluid dynamics and dynamic simulation studies.

Martin believes the technology can enable cost effective development of subsea oil and gas fields in remote locations.

Technology manager Voula Terzoudi describes this work program as "yet another great example of the value that comes from FutureLab's capacity for rapid and cost-effective prototyping".



Milestone cargo: The Northwest Swan delivered the 5000th cargo from the North West Shelf Project in September to customers in Japan.

Milestone passed, more ahead

The North West Shelf (NWS) Project chalked up a major milestone on 4 September, delivering its 5000th cargo of liquefied natural gas (LNG).

An important achievement for Woodside and its NWS Project partners, the cargo was successfully loaded across two days at the Karratha Gas Plant (KGP).

“This milestone demonstrates our continued commitment to safe and reliable delivery of LNG to international markets,” says asset manager of KGP, Andrew Lobb.

“It validates the efforts of our people, who have delivered and sustained safe reliable operations over three decades.”

The milestone cargo was accepted by Captain Kristijan Juretic of the Northwest Swan for delivery to customers in Japan. Captain Juretic was presented with a commemorative gift in recognition of the milestone.

Joining the fleet in March 2004, the Northwest Swan is one of several NWS Project vessels responsible for the delivery of LNG cargoes to NWS Project customers around the world. The first delivery by the Northwest Swan was to Japan back in May 2004.

“Since our first cargo delivery in 1989 to Japan, the NWS Project has earned a reputation as a world-class provider of LNG for our efficient and timely

delivery of LNG to customers,” says vice president NWS Venture and NWS Project CEO Mike Scott.

It’s a statement with which Paul Oliver, the general manager of North West Shelf Shipping Services Company (NWSSSC), agrees.

“We are able to achieve our world class reputation because of the hard work the Operators put forward in ensuring that the cargoes are produced in a safe and reliable manner, which is then supported by us,” explains Paul.

The NWS fleet has delivered LNG cargoes produced by the NWS Project to customers around the globe for nearly three decades.

“It’s all about providing the link between the production of LNG and delivery to customers,” says Paul.

“We work with the Project partners to ensure that, from safe and reliable production to timely and efficient delivery, we are making the most out of our product”.

As the NWS Project story continues, so too will the milestones.

“This year we can celebrate our 5000th cargo delivery, and next year we can celebrate 30 years of reliable, safe and efficient LNG delivery,” says Mike.

“The long-term future of the NWS Project is exciting.

“Our strategy and investment to ensure processing of not just NWS gas reserves but also other resource owners’ gas through NWS infrastructure provides NWS with a very long-term future that will benefit our shareholders, our community, the State and the Commonwealth.”

The NWS Project partners are working together, and committing significant effort and resources to transform KGP into a facility for processing third-party gas for decades to come.

Fast facts

- The North West Shelf gas fields were first discovered in the 1970s.
- There are six partners in the Woodside-operated North West Shelf Project: BHP Billiton Petroleum Pty Ltd, BP Developments Australia Pty Ltd, Chevron Australia Pty Ltd, Japan Australia LNG Pty Ltd (MIMI), Shell Australia Pty Ltd, and Woodside Energy.
- The first LNG cargo shipment was delivered to Japan in 1989.
- The 1000th LNG cargo shipment was loaded in 1999 and shipped to Japan.
- The NWS Project will achieve 35 years of domestic gas production in 2019.

Training puts safety first

Woodside has worked closely with inspection and testing contractor Vertech and training provider ERGT to develop and implement a project specific training program.

The purpose was to prepare for a complicated offshore inspection and remediation scope where the inability for someone to self-rescue would result in a formidable rescue scenario in one of the most challenging spaces found on an offshore floating asset.

Woodside contributed funding to the training program to make certain the contractors' workforce was well trained and equipped to deal with any rescue scenario.

To this end, 21 technicians have been undertaking an intensive five-day rescue course in Perth at training provider ERGT.

Those technicians will be conducting maintenance on the Okha floating production storage and offloading (FPSO) facility, which is located about 135 km north west of Karratha above the Wanaea field.

"It's a big, long job so thorough training to prepare for any rescue situation is vitally important," says Shannon Byers, maintenance superintendent FPSO.

The training comprises simulated rescues through horizontal compartments, vertical lifts, and the transition of injured persons across the water from the Okha's RTM, or riser turret mooring.

The maintenance is part of the Okha RTM Life Extension program, which began in 2016 and will span five years.

This year's scope will take 85 days across Q3 and Q4.

Maintenance technicians working two shifts, 24/7 over 22 days, will be assessing and remediating corrosion found on J-tubes, which contain flexible risers, half way down the RTM riser column.

Shannon says the scope is complex, mainly because entry into the

compartments is so restricted and congested.

"The access ports for example, are only 460 mm in diameter and everyone – and everything – has to fit through that space," he points out.

The heat from the production risers means temperatures can rise to almost 60 degrees Celsius (unventilated). A powerful ventilation system provides cool, dry air to prevent heat exhaustion and dehydration – two of the more likely emergency scenarios, together with slips, trips, and falls.

"We're using as many contractors as we can with experience doing similar work, but there was a need for refresher courses," adds Steve Meerton, maintenance team leader Okha.

Vertech Group and maintenance contractor IAS Group are providing the technicians, equipment, tooling and materials to deliver the project.

Peter Tawse, Vertech's lead project manager, Marine Department, knows

the challenges well; he first entered the RTM column in 2011, and has been involved with each of the Okha RTM Life Extension campaigns since 2016.

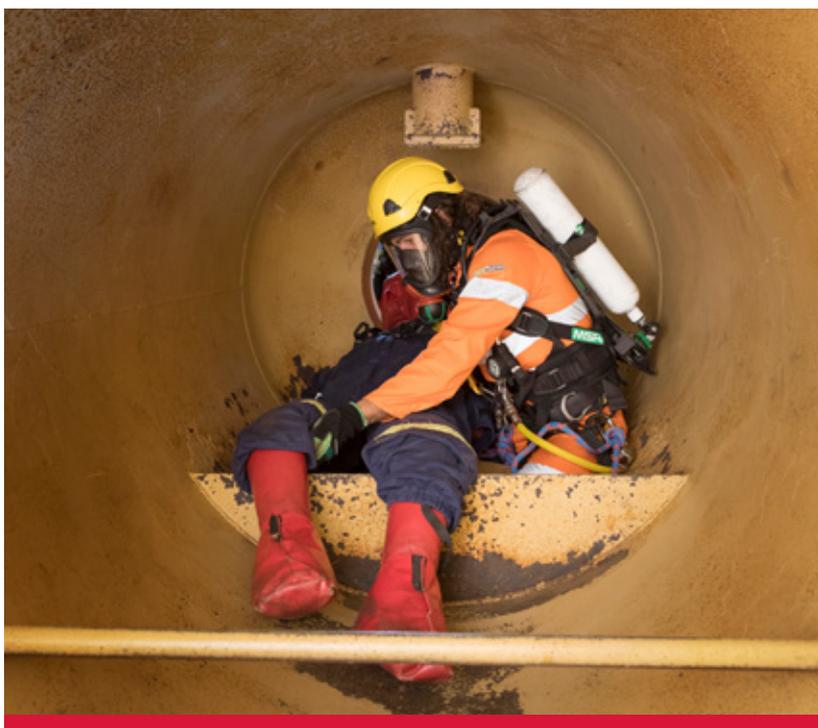
"We refresh all competencies regularly, and tailor the practical training exercises and final practical exam to replicate as closely as we can the various rescue scenarios that might be undertaken offshore," Peter explains.

"ERGT has been very supportive and played a big part in facilitating such a successful safety training program."

Peter, Shannon and Steve agree that assembling the contractors' technicians together before setting out for the Okha, and Woodside's leadership team getting to meet the workforce, adds a huge amount of value in a high-risk scope.

"The biggest success has been the collaboration and the commitment we have shared with Woodside," Peter notes.

"The safety culture that's developed has been fantastic."



Playing it safe: Simulations at a Woodside training provider ensure workers about to embark on a complex maintenance scope at the Okha are fully prepared for a broad range of scenarios.



A day in the life of ... a workplace and wellbeing manager

It's as if Amanda Kirkwood had her current role in mind when she set out on her career path.

Woodside's manager workplace and wellbeing has accumulated a wealth of expertise over 20 years of project management, change management and office management.

And now she's using those skills in our Global Property and Workplace team.

Since joining Woodside in September 2016, Perth-born Amanda has been at the centre of preparations for the move to Mia Yellagonga, our new headquarters in Perth.

It's a new building but not a new field for Amanda.

In a previous role with a large commercial real estate services company, she worked with several multinationals that relocated or fitted out new offices.

But few projects have been as exciting as helping design, build and operate the Woodside HQ campus and

transition around 3000 people with established new ways of working.

"My role initially involved project management for various aspects of the design for Mia Yellagonga, including ergonomics, signage and wayfinding, waste management and sustainability," Amanda explains.

"Now my focus is on the transition to Mia Yellagonga and particularly on establishing the workplace and wellbeing aspects and amenity which are designed to support our people to focus on outcomes and perform at their best."

Below is a typical day as Amanda prepares Woodsiders for the move to Mia Yellagonga.

6:30am: I leave home around 6.30 and walk into the city for my daily morning yoga class. The walk and yoga really wake me up, clear my mind and get the day off to a great start. After an hour of yoga, I change and head into the office to eat a healthy breakfast while I check my emails and review priorities for my day.

8:30am: The Australian property team holds a weekly meeting when we review our progress against key milestones and discuss the critical deliverables for coming weeks. Our general manager, Debbie Morrow, ensures that we have a clear understanding of the project vision and key business imperatives, and the team works together to ensure no matter what challenges arise that we always deliver on our promises.

9:30am: Another meeting, this time with 4W – Woodside's Workplace, Wellness and Wellbeing committee – to discuss ways in which our facilities and services can best support our people. One topic today is environmental sustainability and how we can promote behaviours that support the elements incorporated in Mia Yellagonga, which has the highest possible green star rating and the most ambitious six star energy usage ratings across all metrics.

Although 4W is currently focusing on Mia Yellagonga, our aim is to support delivery of enhanced workplace, wellness and wellbeing across Woodside's global footprint. We want



All's well: (clockwise from opposite page) Amanda Kirkwood starts her day with an hour of yoga; her work takes her across the Mia Yellagonga campus; meeting the workplace management staff; checking progress on various projects still under way; and discussions with the Australian property team.



to introduce elements of RightSpace and the feel of Mia Yellagonga to other Woodside offices across the globe. It's important that people are able to share in our exciting new ways of working wherever they are.

10:30am: A quick change into my PPE and then over to the Wellness Centre on Level 1 of Boolah Dah Moort and the Intelligent and Autonomous Systems Workshop in Karda to check the progress of the fit-out construction work. One of the most rewarding parts of my job is seeing how the plans we've developed with the business come to life in a physical space.

11:30am: I speak with the workplace management team to finalise the details for welcoming our employees and introducing new tools to work more efficiently. For example, centrally hosting external meetings to enable unencumbered internal usage of value chain walls and visual performance management free of confidential information we do not want our guests to see.

12:30: Lunch is usually a quick bite on Level 14 of Karlak with my team mates from Global Property and Workplace. Sometimes we chat, sometimes we sit together tapping away on our HP Elites as we munch. Mia Yellagonga has custom-designed areas for people to explore which invite different ways of working and a different level of personal engagement. I've been lucky enough to test drive some of the

catering from The Shelf, the café on Level 2 of Karlak, and I can't wait for it to open.

1pm: Afternoons usually comprise a variety of tasks, like project meetings and developing procedures and processes for our new campus and ways of working. No two days are ever the same, which is something I really enjoy.

At the moment, we're running two orientation tours daily to help familiarise people with the incredible facilities at Mia Yellagonga. It's great seeing people's reaction to the campus. In my team, we all know it's fantastic but we also get caught up in focussing on getting the facilities fully operational, so when we see people are impressed it gives us an energy boost.

Running the orientation tours also gives me a good chance to practice my public speaking. This is an area I've previously found challenging but having attended some of the great courses offered by Woodside and practising my skills with a really supportive group at the Woodside Energy Toastmasters, I find I now really enjoy talking to groups.

4pm: Late afternoon I normally spend some time sitting with different members of my team. When I'm working with someone in particular I track them down with an email or a Jabber message so we can co-locate. Once the Wayfinding app is ready it will

be even easier to find the right people and the right space to deliver.

6pm: I try to leave work by 6pm so I have time to go rock climbing, attend a local No Lights, No Lycra class for some dancing in the dark or just recharge at home by reading a book and relaxing with my husband, Jaimie.

I also love learning about other languages and cultures and my current role has broadened my local perspective enormously.

I'm really proud to be able to talk to people outside Woodside about the Noongar Whadjuk naming of the buildings at Mia Yellagonga and the Indigenous artworks that tell important stories of the history of the land.

My favourites are the beautiful paintings by Tjyllyungoo (Lance Chadd) representing the six Noongar seasons. They're replicated in the locker rooms on each floor of Karlak.

I recently completed one of the company's Noongar language courses. Learning a language and speaking to the artists helps broaden my understanding of the Noongar culture and has given me a new appreciation of the land we live on.

It's amazing to be able to work on such a world-class project and ongoing operation here in Perth and I am now looking forward to everyone moving in.



On-Boarding: Woodside's Board of Directors at the official opening of Mia Yellagonga in August, when Indigenous elder Richard Walley (far right) delivered a speech on cultural recognition.

New HQ heralds new era

A new way of working for new times.

That's the promise held out by Mia Yellagonga, Woodside's new Perth Headquarters and soon to be the new work home for some 3000 people when the company completes its orderly transition from nearby Woodside Plaza.

The Legal team was among the first "official" occupants, transferring in mid-September.

"We've been looking forward to this day and everybody is very excited at the prospect of settling in and exploring what Mia Yellagonga has to offer," said Andy Cox, vice president Legal.

Debbie Morrow migrated unofficially much earlier.

"I've been working out of Mia Yellagonga since June as part of the 'pilot occupation'," says Debbie, general manager Global Property and Workplace.

And that's given her a valuable preview of the campus' potential.

"The aim of what we've created is that it speaks to who we are and where we're going," she says.

"Enabling innovation, collaboration and driving acceleration are the anchors for the design."

Indeed, Mia Yellagonga is the result of extensive internal and external engagements to create exactly what would work specifically for Woodside and its people.

"While Mia Yellagonga may seem small compared to our projects, what has been delivered in four years is staggering in the property industry and a testament to all involved," she says.

"I have to say that after working here for a few weeks it is incomparable from what we're familiar with, and it takes courage to explore and try ways of working never previously conceived.

"I tend to be a stickler for routine and 'old-fashioned' structure, so supporting my team to work where they feel they can perform at their best and not

necessarily be able to see them was disconcerting at first.

"On the other hand, suddenly I have found freedom under RightSpace working principles which has changed the way I approach team engagement and matured my own work and leadership style."

RightSpace aims to break down "silos" and encourage Woodsiders to mingle, collaborate and work in the space that best suits them at that time.

The strategy behind more "freedom" is to change behaviours and influence performance.

Debbie says the benefits of this freedom soon become apparent.

There's the "bump" factor of working next to people she'd not normally meet, she says, as well as the wellbeing benefits of moving around more.

There's the fully supported floor that's open 24/7 which will provide security, safety and the necessary amenities

(such as fresh food and showers) for those who may need to work outside normal hours.

There's one floor that's designed as a place to meet people external to Woodside.

And there's a floor dedicated to welcoming people who are closest to Woodsiders – our families and community partners.

“Our internal engagement showed that one of the things people who worked at 1 Adelaide Terrace remembered most fondly was the café there,” explains Debbie.

“It was a social space where people could meet, interact with the executive team and where families were welcome.

“Recreating that at Level 2 in Karlak is additionally special for me, as I was a Woodside kid in the early 1980s when by dad worked on delivering first gas from North Rankin.

“We want our families to feel welcomed at Mia Yellagonga which also provides some recognition for the contribution they make to what we achieve at work.”

There's no question Mia Yellagonga represents a global step change in sustainable design, genuine cultural recognition and new ways of working.

Michael Abbott, senior vice president Corporate and Legal, believes its facilities are second to none, anywhere in the world.

“The aim is to create a work environment that will attract, motivate and retain talent and drive outstanding performance,” Mike says.

Debbie agrees.

“Woodside is empowering our people to select from more than 60 different work settings across the campus designed for individuals and teams to perform at their best at any given time,” she points out.

“But we need people to be brave and explore the campus to seek out the breadth of spaces and trial and test how they can improve outcomes.”

And judging by the feedback her team has received during orientation tours, Woodsiders are itching to take advantage of the opportunity ahead.

Families first

Mia Yellagonga hosted a couple of events prior to the transfer of Woodside staff – the largest being a traditional Indigenous smoking ceremony to ensure the land is culturally safe for our people and visitors.

The event was held on a Sunday in mid-July on the last day of this year's NAIDOC Week, and it attracted hundreds of Woodsiders and their families.

The smoking ceremony was only one part of a full morning's activities.

There was musical entertainment, performances by Yirra Yaakin, Indigenous-owned businesses displayed products for sale, and everybody was encouraged to take up a paint brush and help create a

permanent Indigenous mural by Jade Dolman in Karlak.

In mid-August, the campus was officially opened by WA Premier Mark McGowan and our chief executive officer Peter Coleman, with the Board of Directors in attendance.

Indigenous elder Dr Richard Walley delivered a heartfelt speech on cultural recognition, and the Premier paid homage to Woodside's pioneering spirit, significant contribution to Western Australia and forward growth portfolio.

In conclusion, the CEO noted that Woodside's relocation to the new headquarters primed the company for new ways of working that are integral to the innovation, collaboration and acceleration inherent in delivering the company vision.



Opening time: Woodsiders and their families experienced a traditional Indigenous smoking ceremony in July (top), which was followed by a performance from Yirra Yaakin.

Leading edge

Clear and honest communication helps engage people and make collaboration effective – which in turn helps deliver value for Woodside.

That’s one of the lessons learnt by the team charged with finding a new integrated power solution for the Burrup Hub.

It’s a complex problem.

There’s the need to refurbish Karratha Gas Plant’s turbines, to lower emissions to meet our targets, and to create cost-effective solutions that will attract growth portfolios to the Burrup Hub.

North West Shelf business manager Sarah Carter, development lead Tom Lukatela and commercialisation manager Nancy Nguyen were given the task of finding a solution.

Communicating openly helped them on their journey.

Sarah, Tom and Nancy featured in a video to promote this learning as part of the company’s refreshed leadership framework in which “communicates openly” is one of nine leadership expectations.

The framework was launched in May 2018 and awareness campaigns on its many facets will run till the end of

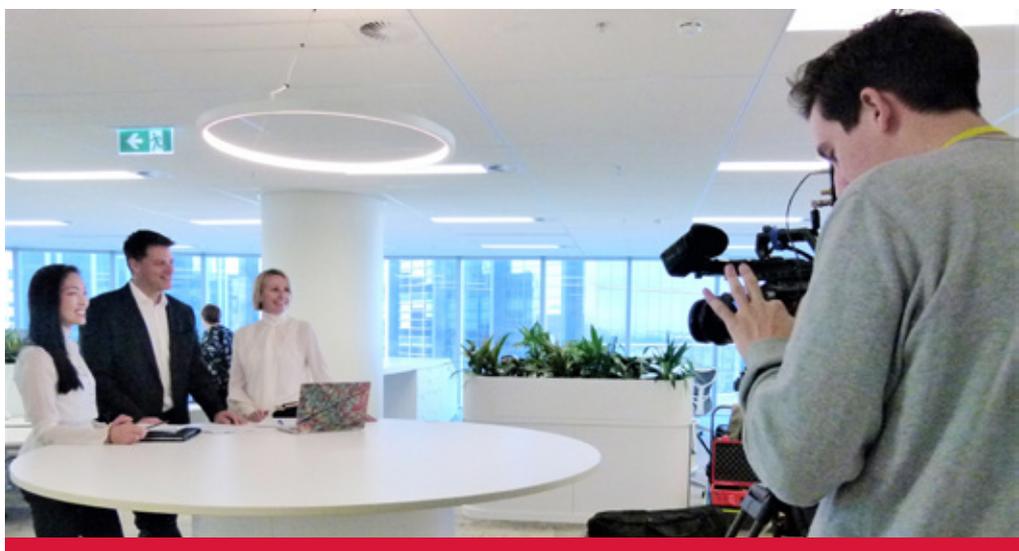
2019. Woodside’s seven divisions will promote the competencies.

“The idea is to reinforce our message that we want to see everyday leadership demonstrated by everyone at Woodside and help embed the new leadership expectations,” explains Anna Natalotto, learning and development manager in People and Global Capability (P&GC).

“We wanted to find a way that would help people really understand the refreshed expectations without overwhelming people with too much information at once.”

“Communicates openly”, sponsored by Exploration and Technology, was the first leadership expectation to be promoted. In Q4, Operations will sponsor “maximises performance”, followed by Finance and Commercial and “delivers results”.

Shaun Gregory, executive vice president Exploration and Technology, and executive sponsor of the “communicates openly” campaign says: “Leadership is so important for Woodside to deliver on its aspirations, and the leadership framework is how we define what we expect from everyone across the business.”



Clear expectations

The Woodside Leadership Community (WLC) is endeavouring to put the refreshed leadership framework into action by spreading the message among its 700-strong cohort that leadership is everybody’s job.

The WLC has organised seminars for its members in Perth and Karratha, inviting senior managers and executives to relay the story of their journey, some leadership techniques and advise how to support each other.

Operations capability manager Jamie Huthwaite has helped develop the program.

“We’ve been focusing on ‘strategic clarity’ which we think is one of the most important of the nine leadership expectations in the new leadership framework,” he says.

“Our people are looking for strategic clarity and as leaders within the WLC, we are investing in our narrative for our teams.

“This involves working out how we tell the story to our teams of where this organisation is headed, and their role in that journey.”

So far, three sessions have been held and more are planned so all WLC members get a chance to become involved.



Leading the way: (top) Nancy Nguyen, Tom Lukatela and Sarah Carter helped create a short training video on the benefits of communicating openly. (Below) the Woodside Leadership Community is holding a series of seminars for its 700 members, with senior managers and executives invited to talk about leadership.



Building knowledge: Woodside helped capability building in Senegal by co-ordinating a five-day workshop about the oil and gas industry for Government workers from 20 departments.

Tapping into oil and gas knowledge

Woodside has worked with government officials in Senegal to develop broader understanding of the oil and gas industry via a four-day workshop held recently in the nation's capital, Dakar.

Covering areas such as environment, social and health and safety risks relevant to our industry, the workshop provided an overview of international standards used to assess and control impacts.

More than 50 government employees from 20 departments attended the workshop, which was conducted in French and co-ordinated by environment adviser Isabelle Moller.

Woodside funded the workshop, but it partnered with an independent international environment and social impact assessment agency to develop and present the material.

"We enlisted the help of Acorn International which has a record of developing capability in several African nations," Isabelle explains.

"We also had the challenge of delivering training requested by the government, without having a perceived conflict of interest."

Woodside acquired an interest in offshore Senegal, including the SNE oil field, in 2016.

The joint venture also includes Cairn Energy PLC (operator), FAR Limited and Société des Petroles du Sénégal (PETROSEN).

The initial phase of the SNE oil field, SNE Field Development-Phase 1, is scheduled to be Senegal's first offshore oil development. Woodside is targeting first oil from the development in 2022.

The Senegalese Government flagged to Woodside that capability building was needed because the country has only limited exposure to, and knowledge of, the oil and gas industry.

Strengthening the capability of government and regulatory institutions is seen as critical to the sustainable success of major development programs and the workshop was part of a wider program aimed at helping the Senegalese Government oversee the industry.

Greg Mogan, vice president Senegal, says: "We are committed to furthering our partner of choice reputation and our in-country presence means we can readily support capacity building activities in Senegal."

The workshop was held in June prior to the submission of the Environment and Social Impact Assessment (ESIA) Report for SNE Field Development-Phase 1.

"The information provided to workshop participants helped them to understand the methods used to

identify and assess risks described in the ESIA," Isabelle explains.

Acorn worked with Senegal's Department of Environment and Classified Establishments (DEEC), to develop and deliver the intensive training workshop which provided structured tools and guidance tailored to the industry and the Senegalese Government.

Feedback from the attendees demonstrated the workshop was a success.

One wrote: "This training covered most of my concerns and helped me appreciate the ins and outs of the petroleum industry and relevant environmental management aspects."

Isabelle says the feedback helped indicate key areas future capacity building should target.

"The approach to capacity building has shown how Woodside can work with government partners to accelerate the successful governance of the industry," she says.

Senegal country representative Cheikh Gueye says: "There was also some valuable sharing of technical knowledge and experiences by Woodside with Senegalese government experts, who in turn provided an in-country perspective," Cheikh reports.

Masterclass **raises** bar and **awareness**

Operational discipline, cultural awareness and inclusion and diversity (I&D) have been packaged in a “masterclass” for hundreds of Woodside’s operations employees.

Early indications suggest the one-day course is a great help in raising awareness among Woodsiders based in Karratha of local Indigenous culture.

Operations capability manager Jamie Huthwaite says the Murujuga Aboriginal Corporation (MAC) has been pivotal in its success.

The origins of the training course go back to discussions last year about the need to ensure employees on the front line have a clear understanding of key processes, the way Woodside works and the company’s expectations in areas such as Ensure Safe Production.

It was also recognised that commitments made under our Reconciliation Action Plan (RAP) stipulate all employees complete a cultural learning activity by 2020.

“Last year, only 7% of our workforce had undergone such an activity, so we had a long way to go in a relatively short time,” Jamie notes.

There are significant logistical issues to organise training for almost 400 rostered operators so it was decided to combine I&D and cultural awareness training with the promotion of safe and reliable production.

Months of work went into designing an engaging, interactive course and operations capability analyst Katrina Rees, operations process owner Ross Trainer and Mike Banfield of the production operations team were closely involved.

MAC agreed to hold a welcome to country ceremony at Deep Gorge in the Murujuga National Park (MNP) followed by a tour of Indigenous rock art. The group then heads to MAC Headquarters, on the outskirts of Karratha, for a cultural awareness induction.

“We then thought that that would be a great venue for the whole course,” says Katrina. “To its credit, MAC went above and beyond to help us achieve that ambition.”

The aim is for almost 400 Woodsiders to undertake the training by October.

Every session includes 15 to 20 operations workers, and a couple from the Indigenous-owned contractor Matera Electrical.

The morning sessions centre on building cultural awareness of the MNP in the Burrup Peninsula. The Murujuga Rangers give the cultural awareness induction and MAC’s Conrad Aubrey gives a passionate and knowledgeable talk.

“We wanted to educate people about the place in which they work because a lot of people drive through there and have little

knowledge of the history of the MNP and the Burrup,” explains Katrina.

The program includes a 90-minute discussion on behaviours in workplace to affect inclusivity in the workplace, put together by Indigenous employment adviser Marisa Bradshaw, the I&D focal point at Karratha.

“We recognised that for a more diverse and inclusive workforce, our employees needed to understand how they could contribute individually,” says Marisa.

“Using ‘I understand, I own, I act’, and encouraging each person to make a personal commitment, has provided employees with this opportunity.

“It’s about every single person recognising how diverse our workplace is and building an environment where everyone can bring their whole selves to work and celebrate their diversity.”

The afternoon session comprises a series of facilitated activities that focus on operational discipline, managing risk and process safety management.

Feedback from those who have taken the course has been extremely positive.

“I will be passing this experience on to the rest of my family members,” said one.

“Interactive and enjoyable,” said another. “I gained valuable knowledge of Indigenous culture.”



Class act: Woodside operators visit the Murujuga Land and Sea Unit to build cultural awareness as part of their one-day training program.



From the heart: (Clockwise from top) the Murujuga Aboriginal Corporation's Conrad Aubrey delivers a passionate and knowledgeable talk; the Murujuga Rangers on their visit to Pluto LNG Plant; Noongar Elder Leonard Thorn addresses Woodsiders during a cultural immersion session.

"I had no expectations going into the day but can say honestly I found it to be informative and enjoyable," wrote a third. "A very good session and gave a much better understanding of the local issues facing Indigenous people."

Jamie also points out benefits for MAC, too.

"We've now got this relationship where they want to know what we do, so Katrina organised a tour of Pluto for them," he says.

"Woodside has never done anything like this on this scale before and I think we've exceeded our expectations. It's gone better than we thought."

MAC and Murujuga Rangers can see the mutual benefits, according to Conrad.

"Our experience working with Woodside and its employees has been great," he reports.

"They've been respectful when they've come to our building and have taken an interest in Murujuga. Quite a few have said they didn't know much about the place, or the history of Indigenous people.

"But they've taken in a lot during their short stay at Murujuga."

Conrad says he supports what Woodside is trying to achieve with its inclusion and diversity policies.

"I feel that more companies and businesses should have similar policies and processes in place to speak about these matters and act on them," he says.



Culture class

Sitting on the banks of Djoondalup (Point Walter Reserve), Noongar elder Leonard Thorn speaks about a culture that has existed in Australia for more than 70,000 years.

"Being able to share the stories and knowledge of my people with others is the reason I enjoy the work I'm doing," says Leonard.

"It's the best job I have ever had."

The Noongar on-country cultural immersion is a learning opportunity provided to staff to learn about Noongar culture.

"I appreciate the chance to learn more about how the Noongar lived and

their relationship with the land," says graduate environment adviser and cultural immersion attendee Matt Long.

This is one of many cultural learning activities that Woodsiders offers its employees, with more than 1000 participating since 2016.

"Encouraging participation in these activities demonstrates Woodside's commitment to our Reconciliation Action Plan and reconciliation outcomes," explains Indigenous affairs adviser Ebony Taylor.

Woodside is committed to embedding reconciliation into its core business, aiming to have all employees complete a cultural learning activity by 2020.



Building **greater** experience

Working overseas – whether for a short stint or a long spell – is often regarded as a career highlight.

Maybe it's the stimulation of working in a new culture.

Or perhaps it's the test of working in a challenging environment, coping with different work practices and expectations, sometimes handling added responsibilities outside of one's experience.

Or a combination of all the above.

Moreover, it's a two-way street. An overseas posting allows an employee to grow, but it can bring added value to the business, too.

Which is why Woodside decided to introduce relatively inexperienced employees to Singapore.

They were invited to join the refurbishment of the Ngujima-Yin floating production storage and offloading (FPSO) facility – part of the Greater Enfield Project (GEP) – at Keppel Tuas Shipyard in Singapore.

Neil Maxfield, general manager projects capability, details the rationale.

“Young people bring energy into the team as well as diversity of thought and approach,” he says.

“They jump in and get way more out of it than expected. Diverse teams and inclusive leadership provide the magic sauce for high performance.”

Neil says working in Singapore represents a big commitment and is no vacation.

“They're usually there for 10 months at least with few holidays and a long working week the norm,” he points out.

“But it's about growing the future as much as getting the job done. As well as some younger people at the beginning of their careers we wanted to ensure there was a gender mix in what is traditionally a male-dominated business.

“We're also finding that besides the energy they bring to the team, younger members are bringing the others out of their shell a bit.”

Alison Fahey, systems and integration manager, takes up the story.

“It was agreed that giving younger engineers the opportunity to visit a big site like Keppel, with the sheer volume of people working there, would generate a good experience in areas such as seeing how large organisations manage work flows and safety performance,” she says.

Selecting those offered the chance to work in Singapore was far from random.

“We sought out Woodsiders who have good core discipline and the skill sets necessary,” Alison explains.

“They also need to have the right behaviour to work in a high-pressure environment, and that includes being honest and owning up to mistakes. You have to have people who speak up when they need to.”

One initiative that has helped integrate the younger team members is a “buddy” system, whereby more experienced Woodsiders play the role of mentors.

“The buddy model we've created in GEP is what was developed on North Rankin B, practised on the Okha FPSO and ‘polished’ in Singapore,” Neil says.

“We'll use it on other projects, too.”

In Singapore, FPSO delivery manager Jamie Patten says the buddy system has worked really well.

“When new team members first arrive they have on-boarding with their respective team leads, which allows team leads to understand the needs of the individual and match them with a compatible team member – from both



Growing talent: (Clockwise from opposite page) construction engineer Drennan Goodall confers with Jamie Patten on work scopes at the Keppel Tuas Shipyard; Ngujima-Yin's refurbishment in Singapore, as part of the Greater Enfield Project, has helped broaden young Woodsiders' experience of the company's operations; Neil Maxfield, Mike Robinson and Tony Ryan discuss with graduate project services analyst Lauren King her placement in Singapore.

a welfare and work requirement – as a buddy,” he explains.

“Putting people together is fostering relationships.

“But it also is encouraging all for different ways of working as they discuss from the different areas of the business they have come from.”

Jamie says having graduates and young professionals working at the yard has brought many benefits to the team.

“They have their eyes wide open, ask lots of questions and challenge the ‘why’ for doing things,” he notes.

“Normally, floating assets are remote and graduates and young professionals based in Perth are always at a distance from the product they’re working on.

“In the shipyard, the product is on the doorstep and this provides an excellent opportunity to develop a deeper understanding and perspective.

“It has also allowed the more experienced employees to really move forward their own development skills by allowing them to share their vast knowledge and coaching.”

Alison says GEP always wanted to get graduates working on the project and both delivery manager Tony Ryan and senior vice president Projects Michael Robinson have been big supporters.

Construction engineer Drennan Goodall says working collaboratively

and managing contractor performance in a global environment are among the learnings he’s taken from his Singapore posting.

“The workforce is predominantly Indian and Bangladeshi and so there’s numerous cultural sensitivities to acknowledge and appreciate,” Drennan says.

Graduate construction engineer Ngaire Howard reports: “So far on this project I’ve been exposed to engineering, construction and commissioning activities, which is giving me a great appreciation of the amount of work required to deliver a successful outcome.”

Engineer and handover co-ordinator Stephanie Robson says she’s been able to use her civil engineering background to better increase her awareness across disciplines.

“I get right into the engineering standards but also work with Keppel on implementation strategies and further my construction and commissioning knowledge,” Stephanie says.

Structural project engineer James Fisher agrees on the value of cultural learnings, adding that communication is another challenge they’ve had to tackle.

“Not all personnel working on the facility speak perfect English, so greater attention is required to ensure that the workforce have understood the scope and instructions communicated to them,” James explains.

First-year graduate project services analyst Lauren King spent five weeks at Keppel getting a taste of life in the shipyard.

“It was completely new and thoroughly enjoyable experience,” Lauren reports.

“I gained extensive insight into the importance of adaptive stakeholder management, logistics, project execution lifestyle and exposure to wider Woodside operations.

“This has really helped to reinforce how my day-to-day role contributes to the GEP and company as a whole as well as aspiring me to seek future roles within the projects field upon the completion of my graduate program.”

“Also, working with the commissioning team enabled me to be introduced to a new scope of work and understanding of labour hours, norms and schedule layouts, which will be of great value throughout my career with Woodside.”

Final word to Mike Robinson.

“The diversity in experience, discipline, cultural background and gender in the FPSO team on GEP is truly impressive,” he notes.

“The resulting collaboration across the team and with Keppel is delivering value to Woodside – both in the execution of the scope and also in establishing the formula for how we develop our international teams to enable success on other projects.”

Sharing insights

Woodside's geoscience community took a day out of their busy work schedules in August to attend the 2018 Geoscience Conference – the follow-up to last year's successful inaugural conference.

This year's theme was Creative Thinking in Woodside Geoscience, and the conference attracted more than 180 participants keen to share knowledge, experiences and creative solutions to everyday challenges across the business.

Held in Perth CBD, the day was set up specifically to share insights across the Geoscience function and associated disciplines, including Technology, Digital and People and Global Capability.

And it covered the full range of activities – from acquisition of seismic data and frontier exploration, through to the production and development of Woodside's hydrocarbon fields. "We also made a point of inviting keynote speakers from outside Woodside Geoscience," reports conference co-

organiser and stratigraphy manager Neil Marshall.

"The aim is that this collaboration process will produce additional inspiration in both our technical and business-driven activities."

Neil says the conference was fortunate that internationally renowned physicist David Blair from the University of Western Australia accepted an invitation.

David is co-founder of the Gravity Discovery Centre WA, and his speech discussed the history and measurement of gravity waves, emphasising the importance of collaboration and persistence as tools for success.

"Professor Blair has spent his working life researching and detecting gravity waves," says Neil.

"He delivered an enthusiastic and engaging presentation on the development through time of the concept of gravity waves.

"He even gave us the opportunity to hear an audio-based depiction of the gravity waves produced by two black holes colliding. These are incredibly weak signals by the time they reach Earth."

The other keynote address was business focussed, and delivered by executive vice president and chief operations officer Meg O'Neill.

Meg reflected both on her career in oil and gas with oil major ExxonMobil and her initial insights of her new role at Woodside.

Both key note presentations really seemed to strike a chord among the attendees with a wide variety of real life examples to the benefits of collaboration and innovation.

Other speakers addressed exploration and development topics associated with Myanmar, Africa, Global New Ventures and the North West Shelf, and dedicated sessions on technology and play/prospect risking also were held.

Neil and his co-organiser, principal geologist, Stuart King, report that feedback from attendees has been extremely positive.

"Hands down, the best day I have had at work in years, on so many fronts," said one, while another reflected on the benefits of getting together as a community "and seeing the great work that's being done around the Geoscience function".

Stuart says one difference from last year's conference was that all the presentations were professionally filmed.

"They're now available for viewing and those interested in watching one or more presentations can find them on a dedicated Woodside Sharepoint site," he says.

Neil and Stuart hope that besides establishing and renewing contact with colleagues, delegates will take back to their work some new and creative ideas that they can apply to their roles.

"We're planning on running another conference next year, and exhibiting the posters again during several forums in the exciting new Mia Yellagonga campus," Stuart adds.



Positive reviews: Neil Marshall, Amanda Panting and Stuart King review another successful Woodside Geoscience conference.



School's in: Left, St Luke's principal Michael Williams, corporate affairs adviser Ben Cranston and Karratha Senior High School (KSHS) principal Jennifer McMahon discuss the benefits of the Karratha Education Initiative. Right, student Rachel Thorn in the KSHS library.

Taking the initiative

A social investment program in Karratha originally intended to be a three-year pilot has been so successful it's run for a decade.

The Karratha Education Initiative (KEI) has gone from strength to strength since it launched in 2007 and delivered its first programs a year later.

The Initiative comprises the Woodside-operated North West Shelf Project (NWS Project), St Luke's College, Karratha Senior High School (KSHS), the WA Department of Education and the Catholic Education Office.

In total, the NWS Project has invested almost A\$10 million to help students experience similar opportunities and resources that their counterparts enjoy at good-quality schools in Perth.

Kate Gauntlett, corporate affairs manager Karratha, says the KEI supports improvements in Western Australian Certificate of Education standards and participation of students in Karratha high schools.

It also enhances the standing of the schools and their relationship with the community to drive greater investment and partnerships.

And because KSHS and St Luke's provide secondary schooling for students living in towns near Karratha, the benefits have spread through the Pilbara.

The KEI's core objective is to deliver high-quality educational opportunities for high school students

and professional development opportunities for their teachers.

Supporting key objectives are:

- Improve education standards and participation in post-compulsory schooling within the City of Karratha.
- Enrich the secondary school experience for students and teachers in Karratha
- Deliver educational opportunities and outcomes for secondary students studying in Karratha that are equivalent to those at high-quality schools in Perth
- Enhance the local reputation of Woodside and the NWS Project through recognition of the contribution made to education in the City of Karratha and its effect on community wellbeing.

"We have seen a positive trend in the number of students graduating since the program was launched in 2007," says Kate.

KEI activities have included career awareness programs, ATAR revision seminars, online tutoring, subject advice and a primary-to-secondary school transition program as well as maths competitions for younger students, CoderDojo, mental health and wellbeing workshops, and first aid training.

It's not only students who benefit. Established and trainee teachers have the opportunity to access targeted professional development and practice scholarships.

Woodside asset manager Andrew Lobb says many school students who've taken part in the KEI programs have gone on to achieve incredible things.

"It's also been fantastic to see a number of them enter into further training and employment with Woodside," Andrew notes.

Niall Myles, senior vice president of the Australia Operating Unit and manager of Karratha Gas Plant when KEI was launched, says its programs have contributed to the attraction and retention of Woodside employees residing in Karratha.

"Congratulations to those who have been a part of this decade-long journey," Niall says.

"What a fantastic outcome, not only for Woodside employees but also the Karratha community".

KSHS principal Jennifer McMahon says: "It is great to have such an industry partner walking side by side with our school. It shows great faith in the education improvement we are implementing."

St Luke's principal, Michael Williams, says: "The staff at Woodside involved with the KEI have shown a genuine interest and commitment to engaging with both schools to support positive educational outcomes for students in the region."

An event in October at Woodside's office in Karratha will mark the KEI's tenth anniversary.



Making history

Rewind the clock 20 years and our company was forging ahead with significant growth plans, not least of which was a two-train expansion of our Karratha Gas Plant.

A report at the time likened the proposed A\$6.5 billion development of our North West Shelf LNG business to the looming Sydney Olympics, estimating that our project would cost twice as much but bring 10 times the benefit in terms of GDP and revenue.

The economic climate was not on our side – remember the oil crisis of 1998? – but the resilience of our workforce was strong.

In fact, it was a great year for bringing together people with focus and determination, people who have played a part in not only delivering on that original vision but the many projects that have followed.

Of our 1998 recruits, 71 are still working for Woodside today, contributing to new growth horizons.

This group has now been inducted

into the company’s 20 Year Club, a group that celebrates employees who have provided two decades or more of continuous service.

The club was launched in 2014 to mark the company’s 60th anniversary.

Back then, it had about 200 members but that number has now swelled to 440, indicating how rapidly our business was ramping up.

This year, 22 of the club’s members reached 30-year milestones and two – employee numbers 51 and 52 – notched up 40 years.

Brian Haggerty, our vice president of Innovation and Capability, and Geoff Dyson, a materials logistics coordinator, now join Keith Cahill, a logistics operator and employee number 36, as the only employees to pass the 40-year milestone.

They also join Keith, former Chairman Michael Chaney, noted geophysicist Lachie Maclean and Grant Ross, the man who wrote our original operator manuals, in the Woodside Hall of Fame.

Back in 1978, Brian was working in mining when the offer of a secondment to Woodside, which had yet to start production, came up.

Of course, he never left, buoyed by the opportunities and energised by the possibilities.

Brian has gone on to make highly valuable contributions to a vast array of projects, including our first offshore platforms North Rankin A and Goodwyn.

As CEO Peter Coleman noted at the Perth 20 Year Club dinner: “A hallmark of Brian’s contribution has been his future focus, a quality we still draw on.

“The fact that Brian, our second longest serving employee, is the VP of Innovation and Capability says a lot about his character, agility and visionary nature.

“A past boss once noted: ‘Brian can prepare a vision and bring people along’. Never a truer word was spoken.”

Geoff came to Woodside as an



Creating a legacy: (Clockwise from top left) 20 Year Club members celebrate the company's 64th birthday in Karratha; new members Gerard Ransom and Julie Fallon share stories at the Perth dinner; Geoff Dyson is congratulated by Peter Coleman and Michael Chaney on his induction into the Hall of Fame; Brian Haggerty is handed his Hall of Fame trophy from Woodside's longest serving employee Keith Cahill

18-year-old, after spotting an ad for a purchasing clerk at his local employment centre. He received news of his successful application via a telegram, a document he still has a copy of.

It was the first step in a career journey that has seen him bear witness to many of Woodside's major project milestones and taken him to all but one of our North West Shelf assets.

"We will have to give him a stint on Goodwyn so he can complete the set," said Peter, calling on the Operations team to lend their support. "Geoff may be quiet achiever but his loyalty speaks volumes."

Support was a key theme of each of the club dinners – one held in Karratha on 26 July, Woodside's 64th birthday, and the other in Perth on 31 August.

They celebrated the camaraderie and commitment of our workforce; that pioneering spirit that continues to push our progress.

"It's about catching up with old workmates, reliving past triumphs and tribulations and revelling in all that has been collectively achieved," said Peter.



This is where Woodsiders discover a little bit more about their colleagues – and what they’ve been getting up to outside work hours. Think of it as Trunkline’s version of the water cooler.

Because whether it’s satisfying a passion for a sport, an unusual hobby or doing good deeds in the community, Woodside’s employees and contractors tend to live life to the full. As a result, they often have interesting stories or experiences to recount.

If that sounds like you or a colleague and you think it should be shared with the Woodside community, give us a call or drop us a line.

Footy treat

The children of Woodsiders based in the Pilbara enjoyed a rare treat of playing at the new Optus Stadium in Perth in Q3 – though it’s fair to say their parents were just as excited.

The youngsters came from the Dampier Auskick team, and the Wickham Auskick team also was invited.

They demonstrated their skills at half time during the Fremantle Dockers-Hawthorn AFL game.

“We were invited by the Western Australia Football Commission and apparently Auskick clubs get the chance every four years,” says responsible person electrical Marcus Hadley, who is co-ordinator for the Dampier Auskickers.

Marcus says 24 children from each team travelled to Perth and 14



Woodside employees (including himself) had children playing that day. His two sons, Christian (9) and Alex (6), were in the Dampier team.

“All the kids absolutely loved it but there was a few nervous moments and tears while we were in the race waiting to run out on to the field,” he reports.

“They only played for 10 minutes but I loved watching them have a real crack on the big stage. It was awesome.”

Marcus says everyone who travelled down from the Pilbara had an enjoyable weekend in Perth.

“The kids met Dockers Brady Grey before the game and Tom North after the game,” he reports.

“A few of us went to Leederville Oval to watch East Perth versus Perth and had a great time, with some of the kids getting the chance to meet West Coast Eagles rookies afterwards.”

Turning back the pages

Woodside’s history is made up of fascinating stories.

Since the company was formed in 1954, it has progressed on the back of bold moves, smart solutions and dogged determination.



These stories not only show how we become Australia’s largest independent oil and gas company, they provide inspiration for how we build beyond that.

So, starting in our next edition, Trunkline will highlight such one story each quarter, as part of a new Turning Back the Pages series.

It will be a chance to revisit the pivotal moments that have made our company great.

For now though, we will simply share this picture from the book *Once Upon a Wildcat*.

Taken in 1992 on the decks on the Balder, a deepwater construction

vessel, it shows the jacket of our Goodwyn A platform in the background.

In the foreground are Bob King and Ian Widdicombe, demonstrating just how much PPE has changed in the past quarter of a century.

Ian, who is our current vice president projects Greater Enfield, explains: “I am wearing the standard-issue prescription safety glasses from the time and they were heavy! And they were not dark glasses... and not that safe either by today’s standards.”

Short-sleeved shirts and jeans were also acceptable back then but, of course, long-sleeved hi-visibility, fire-retardant clothing is now the norm.

Sparky's **bright** idea

John Spears has designs on innovation and invention.

John, an inlec maintenance technician on our platforms offshore the north west of WA, pursues a passion for design in his spare time.

And it's led to a couple of prestigious awards for one idea.

"I've always been interested in design – industrial design, landscape architecture, interior design and whatever – and finding better and easier ways of doing things," he explains.

"Working as an electrician, before I joined Woodside we used to have to cut out hundreds of holes in wall linings for power outlets and data points and the like.

"It was tedious work and nothing was ever level, and I thought, there must be an easier way."

So he came up with a plastic device incorporating spirit levels – a template levelling tool which produces perfectly level cuts.

John's idea won a Victoria Premier Design Award in 2013 and he followed it up the next year with a Good Design Australia Award and his invention was displayed in the Power House Museum in Sydney.

His idea has also been patented and registered in Australia and New Zealand.

"People don't believe it when I tell them I've won design awards," he says with a laugh.



Picture this

It's known as the "Wildlife Wall of Fame" and it's a showcase of how nature exists all around our Pilbara operations – and sometimes inside our operations.



It's the work of Dylan Bromwich, a non-destructive testing (NDT) technician with contractor Applus+ Pty who has been working at Karratha Gas Plant for several years.



Dylan uses rope access to inspect Woodside structures, where he comes into regular contact with a pair of ospreys which have made Berth 1 their home.

It's close contact, too.

"We never approach them – they approach us," says Gray McKinnel, a colleague of Dylan who took the photo of him next to his "Wall of Fame".

"It's breeding season at the moment so they're pretty protective of their nest. A sea eagle came over and they chased him away."

Dylan says the number of ospreys in the area has proliferated up and down the coastline thanks to the breeding pair, which has been nesting at the end of Berth 1 jetty (see picture) for some six years.

Gray says there is other amazing wildlife in the area and he and Dylan sometimes capture the lizards, sharks and whales as well as the birds with cameras they carry for their inspection work.

The fruits of their efforts are proudly displayed on the Wildlife Wall in the East Maintenance Office at KGP.

Mike returns West

It's 50 years since Woodside's exciting first discovery of oil off the North West Shelf (NWS) in 1968.

And one of those who played a formative role in Woodside's early history reminisced about those pioneering days during a recent visit to Perth.

Mike West first arrived in Australia in May 1968.

He had taken a position as legal manager of the Burmah Oil Company of Australia (BOCAL) which owned a major stake in Woodside and which was the operator for the group of companies which held the first licence.

"There were no buildings taller than two storeys and no hotels as far as I could find - Perth was really like a little country town," Mike recalled.

"It's changed dramatically.

"We didn't have a very big office or many people in Perth in 1968."

He described our new HQ, Mia Yellagonga, as "very impressive, very smart", adding: "I'm so pleased at Woodside's progress."

Mike's posting to Australia came only a few months before the breakthrough discovery at Legendre-1, off Dampier.

"Everybody was very enthusiastic and there was the feeling, I think, that it was the beginning of something a lot bigger but nobody knew then whether it was going to be oil or gas," he said.

Legendre-1 was deemed non-commercial at the time, but was exploited more than 30 years later.

As legal manager, one of Mike's duties was to organise drilling licences for the NWS joint venture. He was also secretary of the Australian Petroleum Production and Exploration Association.

Though based in Sydney, where he met his future wife, Robina (originally from Katanning, WA) he spent a lot of time in WA.

After retirement, Mike was involved in the Cullen Inquiry investigating the Piper Alpha disaster in the North Sea. This year marked the 30th anniversary of that incident which claimed 167 lives and forever changed our industry.



Mountain high

You won't find it on any map, but there aren't many Woodsiders who haven't visited or heard of Mt Pegrum.

Mt Pegrum is the highest point overlooking both the Pluto LNG and Karratha Gas Plants, a popular location

with newcomers and visitors seeking a high vantage point to take in a grand view of the impressive facilities.

This "mountain" was created by the surplus soil and rocks from the earthworks campaign which preceded

the Pluto foundation project.

But how did this local landmark get its name?

Eric Pegrum was the construction manager for the Pluto Foundation Project when former chief executive officer Don Voelte decided it needed a name and named it after Eric.

"It was funny at the time," says Eric, now construction manager, Scarborough.

"But then the name was used in a subsequent investor briefing and it stuck."

Sadly, this mountain is not destined to last.

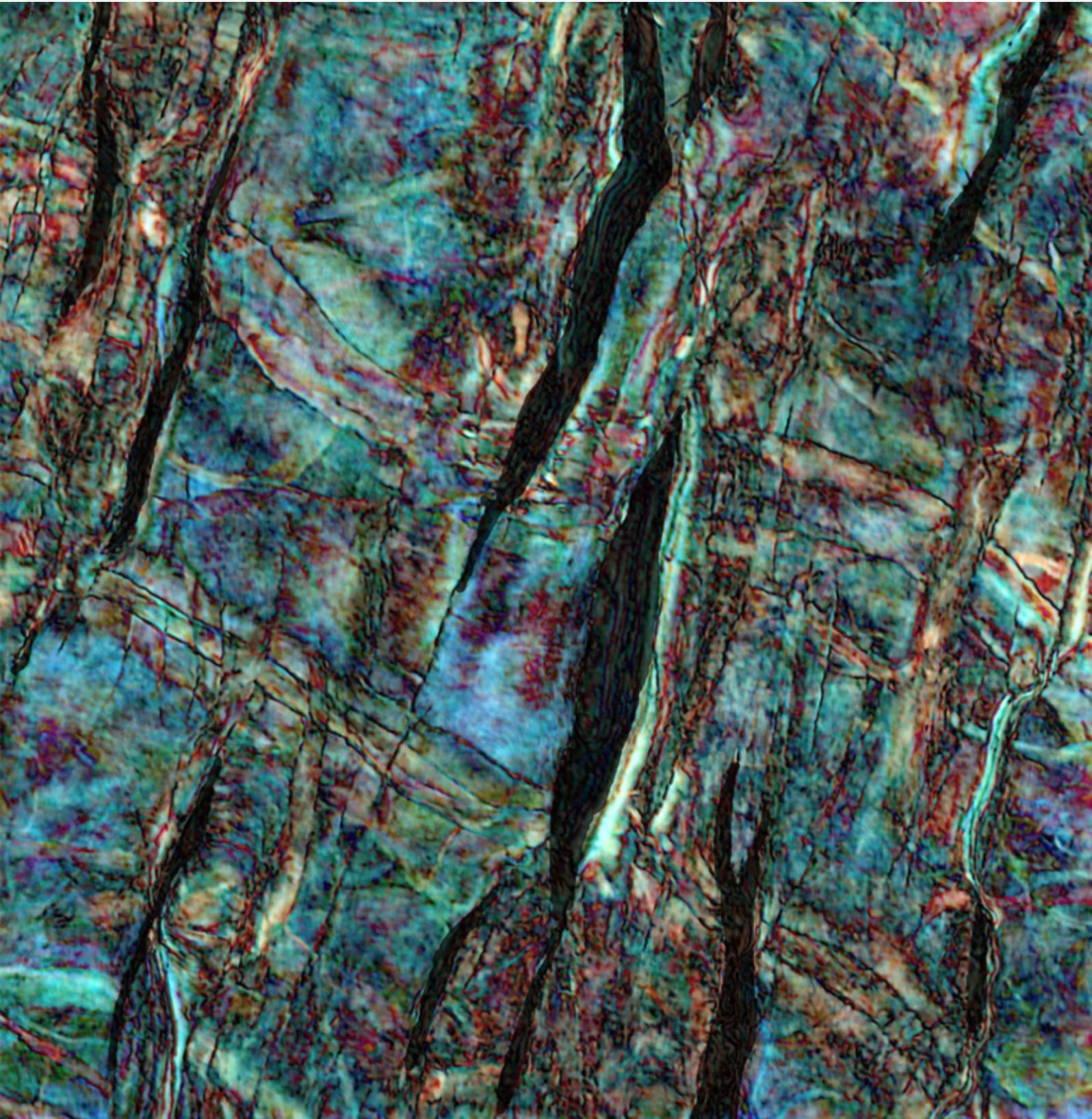
Mt Pegrum is due to disappear when, as part of the Pluto Expansion Project, its rock and soil will be crushed, graded and used as backfill around the foundations of the new LNG train.

"I and others who use it as a viewing platform will be sad to see it go, but at least the rocks and soil will now be used for what they were intended," Eric says.



It might look like an abstract painting - perhaps one by Picasso or Jackson Pollock . But this stunning image is from 3D seismic taken in Woodside acreage on the outer Exmouth Plateau, in the Indian Ocean offshore Western Australia. Geologist Kate Duff explains: "Much like a modern TV splits images into red,

green and blue dots that combine to form every colour, we can split our 3D seismic data by particular properties. We then display these groups as blended colours, accentuating geological features." Nature imitating art, perhaps.





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