



# Inspiration Down Under

On the 30th anniversary of Santos' Cooper Basin Liquids Project, an overview of its incredible history provides an eye opening insight into the magnitude of the project - and pushes the boundaries on just what's possible. By **Kristin Weidenbach**

When Australia's first oil was discovered in Western Australia in 1953, the whole country went mad with excitement. Shares in oil companies went through the roof, taking the rest of the stock market along too. Prime Minister Menzies called it a 'very important development' and newspapers all the way to London proclaimed it to be 'the biggest event in Australia's history since the discovery of gold'.

In Adelaide, lawyer and businessman John Bonython formed Santos to capitalise on the giddiness. He was to remain Chairman of the company for the next 27 years.

Mr Bonython believed his great-uncle's assertion that there was oil thereabouts and his friend's insistence that the South Australian outback looked so similar to the terrain of the Middle East that there was bound to be oil beneath. He appointed consultant geologist Reg Sprigg to spearhead the

search. Santos held exploration leases on Wilkatana Station, north of Pt Augusta, but Mr Sprigg urged Mr Bonython to look further north in the desert country around Innamincka, in the far northeast of the State.

After years of exploration, this switch in focus finally brought success - with American oil explorer Delhi.

It was gas that came first, on New Year's Eve 1963 when the Gidgealpa-2 well heralded South Australia's first hydrocarbon discovery. Moomba was built and gas came to Adelaide in 1969.

But Mr Bonython remained determined to find oil.

In 1970 Bridge Oil finally struck oil in the Tirrawarra-1 well, about 40 km north of the Moomba gas field - the first time oil had flowed to the surface from a well in South Australia.

There was rejoicing over the discovery, but industry insiders curbed their enthusiasm in the knowledge that one modest oil

well did not an oil field make.

Meanwhile, Santos and its farmout partners were proving up enough gas to commit to a gas pipeline to Sydney. Dry gas fields were servicing Adelaide via Moomba, but as more wet gas fields were brought into production, the question of what to do with the associated liquids was becoming urgent.

"People don't realise, when the gas is produced, the liquids are automatically produced with it," former Santos Commercial Manager Mr John McArdle explains.

"We were producing the gas with the least liquids and the liquids we were producing were being burnt as boiler fuel. But ultimately, the amount of liquids we were producing would be beyond boiler fuel and therefore we would be flaring liquids so we could produce the gas.

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Then in 1978 the company's Strzelecki-3 well recorded the biggest onshore oil flow rate in Australian history, spurting oil at a rate of 2400 bopd – easily surpassing the previous best flow from the Cooper Basin.

On the heels of Strzelecki-3 came Dullingari-4 and Dullingari North-1. These big oil discoveries were coming from younger, Jurassic age rocks, while the gas the Cooper Basin partners had come to expect was coming from the older, Permian layers underneath.

It meant a complete reassessment of the entire Cooper and Eromanga basins.

Consequently, Santos was now 'drowning' in liquids of various kinds and a scheme to process and sell the liquids was critical.

In 1980, the Cooper Basin Producers were granted five-year export approval for LPG, paving the way for a liquids project to go ahead. One month later, construction of a liquids pipeline to the coast and

processing facilities at Stony Point, 15 km northeast of Whyalla were announced. Shipments of crude oil were expected to commence early in 1983 with LPG sales starting a year later.

It was an incredibly tight schedule and it was up to Santos Chairman and Acting MD Alex Carmichael to work with Mines and Energy Minister Roger Goldsworthy and Cooper Basin partners to bring the project to fruition. Santos would be operator of the liquids scheme on behalf of the Cooper Basin Producers.

"It was an enormous task because it was firstly a question of negotiating with the government, negotiating with all of the 10 other companies and also of finding the money," says Mr Carmichael.

"It was a huge ramp-up of the company. In a financial sense, it was multiplying Santos by about six times."

In 1981 the indenture between the State Government and the Producers was signed, the Stony

Point (Liquids Project) Ratification Act passed and the Downstream Joint Venture Agreement executed.

At the same time, Santos finalised arrangements for a group of 20 Australian and international banks to underwrite a \$US600 million loan to fund its proportion of the liquids project.

The project officially got underway on 15 January 1982, when Acting Premier Roger Goldsworthy started the trench for the pipeline from Moomba to Stony Point.

Everything about the operation was big.

The world's largest aeroplanes flew in huge pieces of infrastructure that were transported up the Strzelecki Track in enormous convoys. A giant, heavy-lift ship brought a mammoth tower, which comprised the State's largest road haul. More than 37,000 pipes up to 10 metres long were strung along the pipeline route. The Stony Point jetty would be almost a

kilometre longer than the State's longest jetty and the 280 tonne pile-driving crane came all the way from Holland on its own barge.

The Moomba airport was processing more than 1000 passengers per week and 2500 people were directly employed in construction at the peak of the project. Flow-on employment carried South Australia through the global recession of 1982-1983.

In September 1982, the first batch of condensate from the 320,730 barrels stored at Moomba flowed into the northern section of the Moomba-Stony Point pipeline. The storage tanks were almost full, with the rate of condensate production increasing throughout the year as the Dullingari and Burke gas fields were brought into service.

On 18 October the final section of the 660 km pipeline was completed at a total cost of \$88 million, ahead of schedule and within budget.

Two months later, the first



Cooper Basin condensate entered the Stony Point terminal and two months after that, the Cellana – a tanker built in Whyalla in 1968 – returned home to load 157,000 barrels of condensate.

Just over a year after the pipeline trench-digging machine had begun heading south from Moomba, the first shipment of liquids left Stony Point for the Shell Refinery at Geelong. The first phase of the liquids project was complete and the Producers could begin earning income while the remainder of the project took shape.

It was Strzelecki crude that took the title of 'first oil' when production from the Strzelecki field commenced in December 1982, with the first sale of 150,000 barrels departing for WA in March the next year.

Until the 2.4 km jetty was complete, ships were loaded via a submarine pipeline and interim offshore loading facilities.

The \$55 million jetty and its sophisticated electronic loading system was christened in November 1983, when the 60,000 tonne tanker, Arthur Phillip, loaded 410,000 barrels of crude oil destined for Sydney.

Production of LPG was the final stage of the liquids project, arriving at the Stony Point Fractionation Plant in 1984. Domestic customers received the first sale of LPG when the new LPG truck-loading facility opened in July to supply household gas bottles around the State.

The historic first loading of a large export LPG vessel occurred in September 1984, when the Genkai Maru took on board 45,000 tonnes of refrigerated propane and butane for Japan.

Idemitsu Kosan – Japan's second largest oil company and a major importer of LPG into the Japanese market – would take 1.25 million tonnes of LPG, approximately half of expected production during the first five years of operation.

Australia's largest onshore petroleum development was complete.

"When we announced our intentions to proceed with the project, pundits said it could not be done according to the schedule," says Mr Carmichael. "They've been proven wrong."

The Liquids Project positioned Santos as Australia's tenth largest public company and the fastest growing amongst the nation's Top 10.

The company had been transformed from a relatively small petroleum explorer and natural gas producer into Australia's largest onshore explorer and producer of oil, gas, condensate and LPG.

In June 1983 the South Australian Government officially named the Stony Point port terminal 'Port Bonython', to honour the Santos founder and Chairman.

The Cooper Basin Liquids Project was a pivotal milestone for Santos, enabling the company to prosper when other energy companies were crushed under the weight of the worldwide oil price collapse in 1986. This was partly due to its long-term gas contracts, but also because of new revenue from the sale of liquids.

In 1986, local crude prices plunged from \$43.71 to \$15.75 per barrel over six months, leading to the loss of approximately 3000 jobs in the Australian oil industry.

Like others, Santos had to rationalise where possible, but

## Jurassic oil v Permian gas

Prior to the 1950s, geologists were united in their belief that oil would never be found in Australia.

Then gas was discovered in the Otway Basin and at Roma in Queensland, followed by Moonie oil in 1961.

In the Cooper Basin, the Gidgealpa and Moomba gas discoveries were followed by the Daralingie and Toolachee fields. At that time, all of the Cooper gas came from the 250-300 million-year-old Permian layers.

Wells were routinely drilled straight through the younger rock layers to the Permian layers beneath. Prevailing opinion maintained that the Cooper Basin was gas-prone and the younger layers were filled with water.

The Strzelecki, Dullingari and Jackson oil discoveries in the

late 1970s/early 1980s prompted a complete re-assessment of the oil potential of the Cooper. The oil was found in Jurassic rock layers that were 100 million years younger than the Permian gas sediments underneath. In certain parts of the Basin, a single well could pierce both.

Eventually, the nomenclature evolved to consist of two discrete basins separated only by vertical distance.

The gas-prone Permian sediments defined the Cooper Basin; the oil-rich Jurassic formations defined the overlying Eromanga Basin as we know it today.

its strong position due to the success of the Liquids Project enabled it to expand its assets and acquire companies and acreage over a three year buying spree, boosting the company's hold in Queensland and WA and taking it offshore and overseas.

In 1999, Santos' outback SA exploration licences expired without a right of renewal. Pessimists forecast gloom and doom, anticipating competitors exploring what had been Santos ground.

Santos, however, saw the opportunity and created a new line of business, processing oil on behalf of the Basin newcomers.

Since 2005 these companies have been paying a fee to the Cooper Basin Joint Venture (Santos 66.6 percent; Beach/Delhi 20.2 percent; Origin 13.2 percent) for the use of transport and processing infrastructure, including Moomba and Port Bonython facilities and associated pipelines.

"The exploration risk was devolved to the new operating companies and with their success came our success," explains Lou Dello, General Manager Oil, Offshore and Unconventional Resources.

"Being able to process oil from their discoveries through our facilities offsets the cost of running those facilities."

Healthy oil prices, new technology and active exploration programs by Santos and newcomers have enabled new oil-rich trends to be identified.

"In 1990, 50,000 barrels of oil and gas-liquids were being shipped from the Cooper Basin to Port Bonython every single day. From then until the late 2000s the rate had declined markedly. Now the Basin is back up to 50,000 barrels per day," Mr Dello says.

And he sees no reason for the yield to decrease any time soon.

"There's every reason to believe we can emulate the success on the western flank in other areas of the Basin," he says.

"There's plenty of opportunity to sustain the current oil rate." ∞



The official opening and naming of Port Bonython. From left to right, John Bonython, Santos founder and former Chairman, SA Premier at the time, the Hon. John Bannon MP and Alex Carmichael, Santos Managing Director