

# BIG BORE GAS WELLS

More Gas Production from Fewer Wells | May 2012

Woodside is at the leading edge of technologies that maximise production and minimise cost.

## Size Does Matter

Big Bore gas wells are just that – big. Bigger wells allow greater flow. More flow means greater production at lower cost. Big Bore wells reduce the number of wells required per field and make savings right across a development. Our Big Bore gas developments have lower well and subsea capital expenditure, smaller offshore facilities and delayed compression.

Normal gas wells produce through small 5 ½" tubing and achieve rates of around 100 million standard cubic feet per day (MMscfd). Woodside's Big Bore wells produce up to 400 MMscfd through 9 5/8" tubing.

That's four times more production from one well. This benefit comes with a challenge.

Complex and detailed engineering is required to successfully design, construct and operate a Big Bore well. We focus on barriers and life cycle well integrity. We have stringent equipment specifications to address erosion and flow rate challenges. In a Big Bore world, robust and reliable sand face completions are critical.

Big Bore wells can make a huge difference to the size of our facilities. Our offshore platforms can be smaller and lower cost with fewer well slots and fewer production trees. We also get the added benefit of delaying compression

expenditure because pressure loss in Big Bore tubing is lower than small bore tubing.

Woodside is the industry leader in Big Bore gas wells, having commenced with platform Big Bore wells on North Rankin from 2000. With Perseus and Angel fields, Woodside successfully transferred platform technology into subsea wells and installed the world's first subsea Big Bore wells.

Our latest subsea wells required the pioneering use of expandable sand screens.

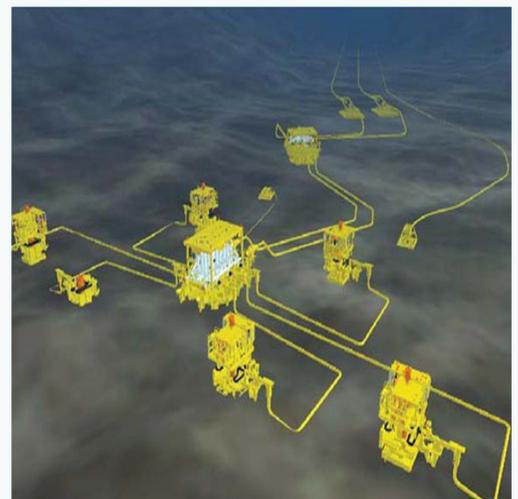
## Keeping It Together

Woodside has world class gas reservoirs with excellent productivity. Keeping our reservoir sand face intact at high production rates requires special completions technologies. Woodside, in another world first, installed a 7" expandable sand screen from a floating drilling rig for the Pluto LNG Project. Expandable screens prevent erosion that occurs in stand-alone-screens and improves well reliability. For Pluto LNG an entire LNG train can be supplied from less than three wells.

Woodside's Big Bore well technology is producing unique value for the business. Woodside continues to lead the way by planning for the world's first Big Bore wells from the Browse Tension Leg Platform (TLP) as part of the proposed Browse LNG Development.

## QUICK FACTS

- Woodside designed, constructed and operated the world's first offshore Big Bore gas wells from the North Rankin platform.
- At high production rates, sand face stability and erosion are major well integrity risks. Our stringent criteria and detailed engineering seeks to minimise these risks.
- Woodside installed the first expandable sand screen in a Big Bore well and the first 7" expandable sand screen from a floating drilling rig.
- Woodside is planning the world's first Big Bore well from a TLP as part of the proposed Browse LNG Development.



Pluto Big Bore Subsea Development