

Find out more about...

Water management

Did you know?



A single golf course's monthly water use is equivalent to 10 years of water use for a shale gas well.¹



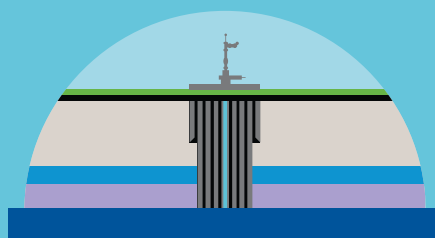
Natural gas produced from shale uses the least water of all major energy sources.²



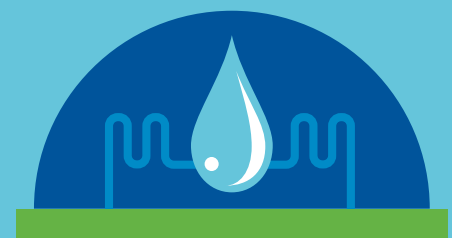
The Agriculture industry was the highest consumer of water in the Northern Territory, consuming 56 gigalitres of water in 2014-15.



Santos works closely with the National Farmer's Federation and Agforce on water related issues and management.



Aquifers are protected throughout the drilling process by layers of specially designed concrete and steel.



Water produced from drilling operations can be used for irrigation, helping to drought proof farms.

+ For over 60 years, water preservation has been at the heart of our operations.

Santos



Water is important to all Australians and it's important to Santos.

The protection and management of water resources is of great interest to communities across Australia and is governed by numerous laws and regulations. We produce and use water as part of our oil and gas exploration and production activities, and we work with a range of scientific institutions to ensure that we conduct the research required to understand how our activities affect local water resources and how any risks can be managed.

We take our obligations to minimise and manage the risk of potential impacts to water resources very seriously. Along with complying with all relevant laws and regulations, we are transparent in our approach to water use and management, and report on our performance through activities such as monitoring.

By providing the facts and an understanding of the lengths that we go to protect and manage water resources, we aim to build confidence in our operations and our approach.

Our approach to water management

Santos' sustainable approach to water management revolves around using advanced rig technologies and reduction and recycling methods including the use of treated or recycled water dust suppression, civil works and drilling activities. The use of recycled water for hydraulic fracturing will assist to reduce the volume of water needed to complete a well.

When Santos moves from the exploration to development phase, facilities are set-up to enable the capture and recycling of water, reducing the amount of additional water required for each subsequent hydraulic fracturing operation.



How does Santos manage risks to water resources?

Santos has robust systems and procedures in place to ensure negative impacts to water resources are avoided or minimised and managed. Importantly, Santos systems and procedures meet or exceed the requirements of all regulatory frameworks that apply to our operations.

To manage the risk of any adverse impacts, the following is generally undertaken in accordance with the relevant laws and regulatory approvals:

- + Groundwater baseline assessments
- + Baseline bore assessments
- + Surface water baseline assessments
- + Groundwater modelling and / or impact assessment – the outputs of which inform location selection and specific management and monitoring activities
- + On-going groundwater and surface water monitoring to verify existing impact assessment
- + Data analysis and reporting

Unlike natural gas from coal seams and conventional oil and gas production, shale gas production produces very little water. Hydraulic fracturing fluids are returned to the surface during production and are treated and re-used or disposed in accordance with the relevant laws and regulatory approvals.



Water management in the NT

Different oil and gas developments require different water management options depending on water quality, existing infrastructure, geology, topography, soils and local demands.

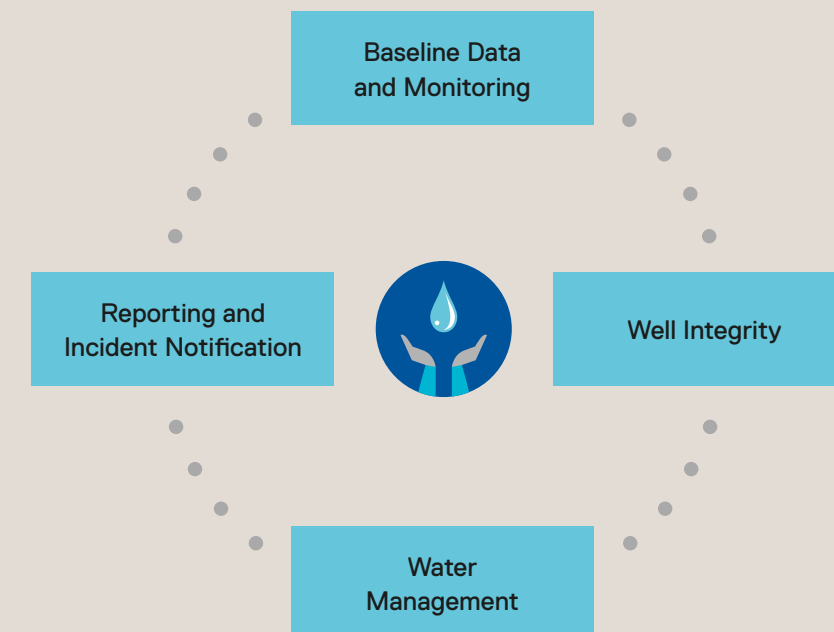
In the NT where Santos is undertaking shale gas development, water is required during drilling and then for each hydraulic fracture stage. Water is sourced locally and stored on site in temporary engineered containment structures before mixing with proppant and small amounts of chemical additives for hydraulic fracture. Once the well is complete and producing, it's important to note that there are no planned water requirements at the well – unlike coal seam gas, no groundwater extraction is required to depressurise and release shale gas.

As part of our baseline assessment in the NT, Santos and other resource companies actively exploring in the NT have entered into an agreement with the CSIRO to establish a coordinated research approach into the methods and establishment of baseline values of groundwater.

This work program will improve our understanding of and quantify the baseline levels of gas and groundwater quality within the study area.

How does Santos protect water?

While the management of water and the industry's impacts on water are tailored to the location of each activity, we have distilled our protection of water resources into four areas. We believe that strong performance across these four 'pillars' will minimise our impacts on ground and surface water resources and provide communities with confidence that we understand our risks and can manage them appropriately.



✚ Industry references

1. Moore, S. (2012). Gas works? Shale gas and its policy implications.
2. Range Resources. (2017). Water Management. Retrieved April 12, 2017, from <http://www.rangeresources.com/corp-responsibility/environment-health-and-safety/watermanagement>
3. ABS - Water Account Australia, 2014-15, Canberra, Australian Bureau of Statistics

Santos – An Australian Energy Pioneer

We have safely and sustainably discovered, developed and delivered natural gas to the people of Australia and Asia for more than 60 years.

As an Australian owned and operated business, we work in partnership with local communities, governments and our business partners to make natural gas an affordable and reliable energy solution for all Australians.



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