The Narrabri Gas Project
Protecting local aquifers

Santos

Santos appreciates the critical role water plays in regional communities.

We will work to ensure existing water users in the Narrabri region and the natural environment are not impacted by our activities.

There are a number of reasons why natural gas extraction will not impact water resources. These include the local geology, the drilling techniques we employ, the knowledge of local groundwater and the stringent regulatory assessments of our work.

Local geology

In our Project area, the aquifer known as the Pilliga sandstone, which is a part of the Great Artesian Basin, generally lies between 5 and 300 metres below the surface. The coal seams we are targeting lie about 500 metres to more than 1,000 metres underground.

Between the Pilliga sandstone and the coal seams lie multiple layers of solid rock known as aquitards.

These rock layers act as barriers to the flow of water either upwards or downwards out of the Pilliga sandstone. If these barriers were not in place, the quality of water in the Pilliga sandstone would be the same quality as the much saltier water in the deeper coal seams.

This geology, which isolates the coal seams, allows the extraction of natural gas without impacting the shallow aquifers.

Drilling techniques

Santos adheres to the highest industry standards when drilling wells. Steel casings are cemented in place to isolate and protect the aquifers. The steel and cement used are designed to withstand operational pressures during production.

After drilling, Santos conducts regular integrity and maintenance inspections of all wells. The wells are monitored in real time and can be shut in remotely if required.

When a well stops producing gas, it is decommissioned. Surface facilities are removed and the entire well is sealed with cement to ensure aquifers are protected, long after the well is decommissioned.

In addition to our own stringent operating standards, regulations around the drilling of wells and well integrity are now contained in the NSW Code of Practice for Coal Seam Gas – Well Integrity.

Gas wells in the Narrabri area target coal seams lying 500 to more than 1,000 metres underground

Coal seam gas and water

To produce coal seam gas, water must first be extracted from the coal seams. This releases pressure and allows the natural gas to flow.

In the Narrabri Gas Project area:

+ The water extracted is not the water accessed by agricultural and community bores
+ It is not taken from the Great Artesian Basin
+ It comes from the coal seams 500–1,000m below the surface
+ The water is highly saline

Knowledge of local groundwater

Santos has gained a good understanding of groundwater in the region.

We conducted an extensive regional groundwater study which included a regional bore survey and monitoring of government and landholder bores.

Cumulative modelling based on this data found there would be little or no impact on the shallow aquifers from natural gas extraction in the area. These findings are similar to those of the independently conducted Namoi Catchment Water Study released in 2012.

Both studies predicted there would be less than 0.5 metre drawdown over 90 years in the shallow aquifers overlying the Project area. This is within the range of existing seasonal variations in the water levels of the shallow aquifers.

Groundwater monitoring

We are monitoring groundwater in the region to establish baseline water data before the Project gets underway and ensure we are able to accurately monitor the aquifers during the life of the Project.

We are also installing a network of aquifer monitoring bores to enhance the coverage of monitoring locations across the region.

The data from Santos' bores is available to the public through an online water portal system at www.santoswaterportal.com.au.

Regulations

The natural gas industry in NSW is one of the most highly regulated in the country. State Government bodies involved in the regulation of the industry include:

+ NSW Office of Coal Seam Gas
+ NSW Environment Protection Authority
+ NSW Office of Water
+ NSW Land and Water Commissioner
+ NSW Department of Planning and Infrastructure

On a Commonwealth level, the Environmental Protection and Biodiversity Conservation (EPBC) Act requires the assessment of impacts on the environment and water resources, including referral to the Independent Expert Scientific Committee (IESC). When necessary, conditions are put in place to manage potential impacts.

The assessment process for work we carry out is rigorous and in almost all cases requires both State and Commonwealth assessment and approval.

Shallow groundwater monitoring

Project overview

The Narrabri Gas Project could supply up to half of the natural gas used by NSW homes, small businesses, major industries and electricity generators every day

Operations will be focussed on land in and around the Pilliga, near Narrabri

The Project will create over 1,200 jobs during construction and bring substantial economic benefits to Narrabri and the region, while delivering a clean, reliable source of energy to NSW

About Santos

An Australian energy pioneer since 1954, Santos is one of Australia's largest domestic gas producers with more than 3,000 employees and a long history of safe, responsible operations.

For more information

santos.com/nsw
Freecall: 1800 071 278
energy.nsw@santos.com
Twitter: @SantosLtd

Narrabri shopfront
125 Maitland Street
Narrabri
New South Wales 2390
Telephone: 02 6792 9035
Open Monday to Friday
from 9.00am to 5.00pm

Gunnedah shopfront
206 Conadilly Street
Gunnedah
New South Wales 2380
Telephone: 02 6741 5100
Open Monday to Friday
from 9.00am to 5.00pm