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# AGL Camden Gas Project Hydraulic Fracturing Fact Sheet

**AGL has used hydraulic fracturing to increase gas production in Coal Seam Gas (CSG) wells in Camden.**

## What is hydraulic fracturing?

Hydraulic fracturing is a well established, tightly regulated technology, which has been used safely for more than 50 years.

It is a process that increases a gas well's productivity by creating a pathway into the coal seam.

The process involves injecting sand and fluids directly into the targeted coal seam. As the rate of injection increases, the pressure of the fluid creates stress in the coal seam until the coal fractures.

The addition of sand ensures that the pathway does not close. The fracture creates a pathway for gas and water to flow out of the coal seam to the wellbore allowing higher rates of gas production.

The fracturing process may also reduce the number of wells required to produce viable gas reserves.

## Hydraulic fracturing in Camden.

As part of the AGL Camden Gas Project, 117 wells have been hydraulically fractured since 1999.

In Camden the fracture fluid consists of about 99.4% water and sand. The remaining percentage was made up of additives to aid the fluid's viscosity.

## Additives used in Camden.

The fluids used were formulated to suit the coal seam's specific characteristics such as; the thickness of the coal seam, stress or the coal's mechanical properties, how many natural pathways already exist, and desired fracture outcome.



▲ Hydraulic fracturing in Camden.

## About us

AGL has been operating in Australia for over 170 years and was one of its first listed companies.

AGL is Australia's leading renewable energy company and is Australia's largest private owner, operator and developer of renewable generation assets. AGL also operates retail, merchant energy and upstream gas businesses and has over three million customer accounts.

AGL is taking action towards creating a sustainable energy future for our investors, communities and customers.



▲ Exploration pilot well within existing grazing land.

The following additives were used in Camden in the hydraulically fractured wells;

- › **Bactericide**, to treat water prior to the fracturing process to kill bacteria. It is commonly used as flame retardant in clothing.
- › **Sodium persulphate**, to help breakdown Guar gel upon return to surface into lined storages. It is often used in Hair Dye and as a cleaner for printer circuit boards.
- › **Hydrochloric acid**, commonly found in household cleaning ingredients.
- › **Citric acid**, a weak organic acid, commonly found in soft drinks, it can also be used as an environmentally friendly cleaning agent.
- › **Knox gelatine**, used as a gelling agent in food, pharmaceuticals, photography and cosmetics.

As demonstrated many of these additives are found in regular household items such as detergents and shampoos. It is also important to note that these additives are also diluted when used, and are not in concentration.

The fluid used is recovered from the well through the 'flowback' and dewatering processes. In the Camden operations, the recovered fluid flows into lined pits, and is transported to lined holding dams.

### BTEX Chemicals.

AGL does not use any BTEX chemicals (benzene, toluene, ethyl benzene and xylene) as part of the fracturing process. These components serve no purpose in fracturing CSG wells.

AGL requires contractors who provide fracturing services to provide a list of all fracture fluid additives used. This information is confirmed by an independent lab to ensure BTEX chemicals are not present.

### For more information.

If you would like to know more about how we are meeting and exceeding our regulatory requirements, our groundwater studies or anything else about our operations in Camden please come and talk to your local AGL team.

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For further information:

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