VICTORIAN
GAS PROGRAM

Environmental studies

Scientists from the State Government's Geological Survey of Victoria (GSV) are conducting groundwater sampling and atmospheric monitoring across the Otway Basin in Victoria's south west and the Gippsland Basin in the south east.

As part of the Victorian Gas Program, a mobile water science team is testing 100 State Government-owned groundwater bores to determine groundwater chemistry, identify traces of natural gas (methane) and provide a benchmark of existing environmental conditions.

The team is also conducting atmospheric monitoring, looking at varying concentrations of methane and carbon dioxide.

Why sample groundwater?

Groundwater chemistry sampling looks at the mix of chemical elements that naturally exist in groundwater.

This program will test for elements such as bromine, chloride, fluoride, sulfate, calcium, magnesium, sodium, potassium, nitrate, dissolved organic carbon, methane, ethylene and ethane.

This analysis can be used to determine the unique chemical profiles of each groundwater system. It also provides a benchmark of local environmental conditions.

The sampling program

The groundwater sampling in the Otway Basin is occurring between August 2017 and May 2019. The team will start near Colac and move west towards Casterton, passing through the local government areas of Corangamite, Moyne, Warrnambool, Southern Grampians and Glenelg.

The Gippsland groundwater sampling program is taking place between February 2019 and June 2019. The bore well sites are located between Port Welshpool and Lakes Entrance. The team will pass through the local government areas of South Gippsland, Wellington and East Gippsland.

The volumes of water taken from the bores will generally range between 50 – 200 litres, depending on how long it takes for the water chemistry to stabilise and be representative of the aquifer.

The sampling work will have no impact on local water tables, flora or fauna.

How are groundwater and natural gas connected?

Natural gas accumulations only exist in certain circumstances in geological basins. Where gas does exist, it seeks to rise through geological layers unless it is trapped by impermeable rock. This migration of gas includes natural movement through aquifers.

By analysing the chemistry of a groundwater bore, scientists can detect signs of gas migration, which could indicate the presence of a natural gas accumulation.

Stygofauna

In addition to trace chemical analysis, the groundwater studies are also sampling for stygofauna. Stygofauna are minute subterranean aquatic animals that live in groundwater. The presence of stygofauna is an indicator of groundwater health. This will be the first regional groundwater fauna assessment undertaken in Victoria.

GEOLOGICAL SURVEY OF VICTORIA

Atmospheric monitoring

A regional atmospheric survey was also conducted in 2018. This survey measured atmospheric changes across south-west Victoria and Gippsland to identify sources of methane and carbon dioxide. This provides a baseline to enable an assessment of any future environmental change.

Victorian Gas Program

The environmental studies are part of GSV's Victorian Gas Program (VGP), which is conducting scientific research into the potential for new discoveries of onshore conventional gas.

The onshore conventional gas studies are designed to provide an evidence-based gas resource estimate and identify the risks, benefits and impacts of onshore conventional gas exploration and production.

The main focus of the VGP is the Otway Basin, which GSV considers as having the highest potential in the state for new discoveries of onshore conventional gas.

The information from the groundwater sampling program and atmospheric monitoring will provide a baseline of environmental conditions.

Local communities and water authorities will have access to the results and all information will be publicly available via the Earth Resources website: **earthresources.vic.gov.au/gasprogram**

The environmental studies will not need to access private land for this program.

Stay in touch

Information about the Victorian Gas Program can be found at: **earthresources.vic.gov.au/gasprogram**

Regular progress reports about the scientific studies can also be found on the website.

To be added to the Victorian Gas Program emailing list, please send a request to: **vgp@ecodev.vic.gov.au**

D/JPR11529 01/19