

Mereenie Aquifer – Alice Springs

How was the Mereenie Aquifer formed?

The Mereenie Aquifer is the largest of several aquifers that make up the Amadeus Basin Rock Aquifer System. It is the major source of water for the public water supply borefield at Roe Creek, providing about 80% of the drinking water supply. The other 20% comes from the Pacoota, Shannon and Goyder Formations.

The Mereenie Aquifer, made from natural sandstone, originally deposited as desert sands around 430 million years ago. Over millions of years, the sand has become stone, full of fractures and cracks. This sandstone acts like a sponge, holding large volumes of water that can be accessed using deep bores.

The water that is stored in the aquifer is very old, dated at between 10,000 and 32,000 years old. This is rain that fell during a much wetter climate than we have now. Today, some rainfall still reaches the aquifer, following flows in the Todd River and Roe Creek.

What is the volume of the Mereenie Aquifer?

The Mereenie Aquifer holds vast amounts of water, but some of it is salty. It is estimated that the aquifer holds about five million megalitres of water suitable for drinking, but only one and a quarter million megalitres of this is of high quality (similar to what you drink now).

One megalitre is approximately the amount of water in an Olympic-sized swimming pool.

How sustainable are the supplies?

Unfortunately, much more water is taken from these aquifers than they receive from rainfall or river recharges. As a result water levels in the Mereenie Aquifer at the Roe Creek borefield (currently about 150m below surface) are dropping about a metre every year.

The water in the Aquifer is considered “non-renewable”, as the rate of recharge from rainfall is insignificant compared to what is pumped out for public water supply. The water is basically being “mined”.

There’s still a lot of water in the basin, but as the level drops, bores have to be deepened and new bores drilled, which is very expensive and uses more energy. The water will also be of a lesser quality which would require extra treatment prior to use.

The life of the Aquifer depends on how we use the water resources now and into the future. At current rates of use, the water resource should last for a few hundred years, but this relies on everyone conserving as much water as possible and finding new ways to be efficient with water, including recycling water.

By using less water now we can all help to conserve our precious water resources for future generations.

What are the predicted impacts of climate change on Alice Springs water supplies?

Because the Mereenie Aquifer contains water that is very old, changes in rainfall due to climate change won't have much direct impact on this aquifer.

The impact of climate change on the Alice Springs area is uncertain. Climate change may affect the amount of water that we need to use though, and also affect some of the other water sources that are currently used for non-drinking, such as irrigation in the town area.

All of these things may affect the lifetime of the aquifer, and so we need to be careful to take any new information on climate change impacts into account.

Where can I get more information?

[Click here for information on Alice Springs Water Resources.](#)

[Click here for a fact sheet on Roe Creek Borefield.](#)

[For information on the Mereenie Aquifer and Alice Springs water supply, including fact sheets, maps and diagrams, click here.](#)