

WERRIS CREEK MINE



WATER

Whitehaven Coal understands the importance of water resources to everyone in our community.

Each of our mines operates under water management plans, which were developed in consultation with relevant regulators and have been approved by the Department of Planning and Environment.

Much of the water used at the Werris Creek mine is obtained from rainfall and is used in mining activities, including dust suppression.

The Werris Creek mine operates in proximity to the Quipolly Creek Alluvium and Werrie Basalt Aquifers. These aquifers are separated from the mine's workings by a clay aquitard that maintains approximately 100 metres height difference between the Werrie aquifer level and the much lower mine floor.

Minor seepage does occur into the mine pit from the Werrie aquifer. This is a normal and anticipated part of open cut mining operations and is why the mine has two Water Access Licences (WAL 32224 and 29506) permitting the interception of up to 261ML per year. The mine consistently intercepts less than half of this permitted allocation.

Data gained from long term monitoring of both the Quipolly and Werrie aquifers shows that water levels are dependent upon rainfall recharge and sustained water flow in Quipolly Creek.

Changes in aquifer levels have been observed and recorded throughout the life of the mine, including during 2011 and 2012 when groundwater levels reached historic highs due to correspondingly high levels of rainfall during that period.

Whitehaven's long-term monitoring suggests that the onset of drought conditions in 2012, and the fact that rainfall and creek flows had not kept pace with groundwater use are the key factors implicated in the decline of groundwater levels seen between 2012 and 2016. During this period, the increased height of the Quipolly Dam wall also restricted water flows into Quipolly Creek and further limited recharge of these aquifers.

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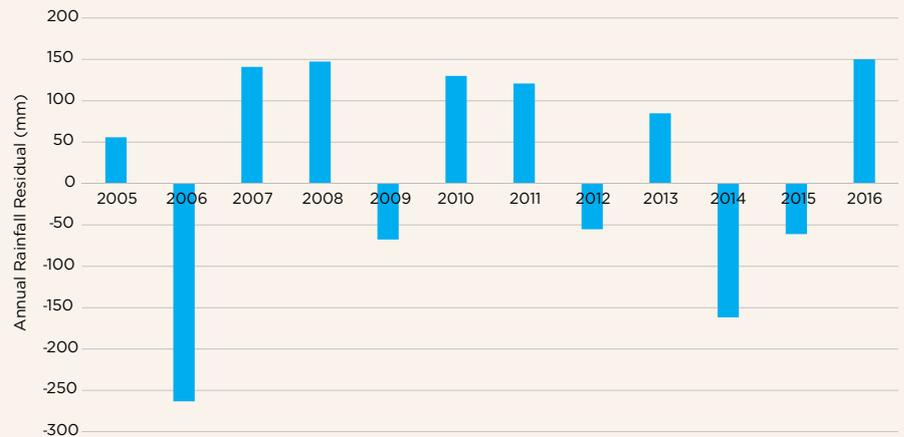
Independent analysis conducted by Ramboll Environ Australia Ltd shows that higher than average rainfall experienced in the second half of 2016 combined with Quipolly Creek water flows resulted in recent rising water levels for both the Quipolly and Werrie aquifers.

Chart 1 presents annual residual rainfall since 2005. Residual rainfall is calculated as the difference between the total annual rainfall for the year and the historical average annual rainfall. The historical annual average rainfall is taken from the Werris Creek Post Office rainfall gauge and is based on over eighty years of data. The chart shows that since 2011, three years of below average rainfall were experienced, with 2014 being significantly below average. Rainfall for 2016 is above the historical average rainfall.

Chart 2 shows monthly residual rainfall since 2005 and the depth to ground water from several bores in the Quipolly aquifer. The recent above average rainfall since mid 2016 combined with water releases from the Quipolly Dam have recharged the aquifer. Water levels have risen sharply in the representative boreholes.

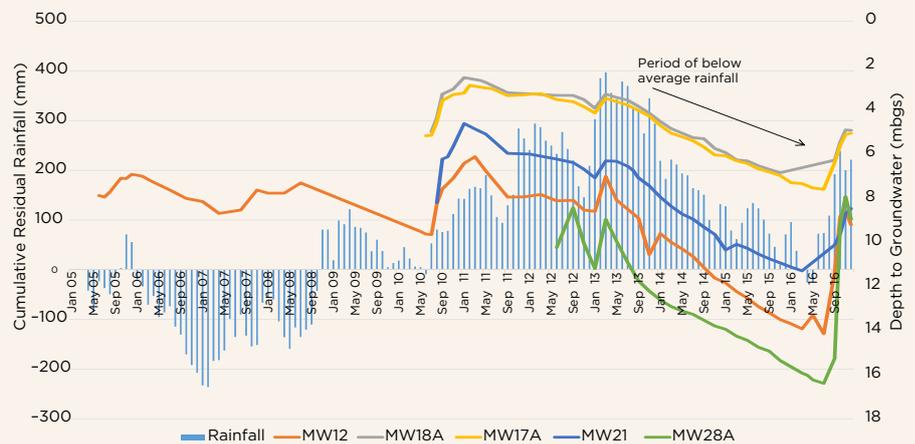
CHART 1
Residual Rainfall

Annual Residual Rainfall (mm)



Source: Actual Monthly Measured Rainfall compared to historical annual averages for the region.

CHART 2
Cumulative Residual Rainfall - Quipolly Alluvial Wells



In a report on groundwater management at the Werris Creek mine, completed by DPI Water prior to the 2016 rainfall event, DPI Water said:

“The Government’s investigations confirmed that there has been a drop in groundwater levels in the Quipolly Creek alluvium. However, the investigations found no evidence that the declines are due to the mine and point to climatic conditions as the likely cause for the drops.”

“The alluvial aquifer at Quipolly Creek is dependent on rainfall to recharge its levels, and the observed groundwater declines in the Quipolly Creek alluvium closely reflect the rainfall trend. DPI Water’s own bores, up to 15 km away from the mine, have shown a similar drop in water level.”