

Broken Hill-Menindee Groundwater Bore Project – Update 5

29 May 2015

Introduction

The NSW Government has undertaken groundwater investigations as part of works to secure Broken Hill's long term water supply during periods when there is insufficient water available in the Menindee Lakes system to meet the city's requirements.

These investigations have been undertaken on the northern margin of Lake Menindee in the vicinity of the interconnecting channel between Copi Hollow and Lake Menindee. This area has been selected due to its proximity to the Broken Hill pipeline and existing infrastructure, as well as the potential suitability of the groundwater aquifer to meet supply requirements.

The program has consisted of the drilling of five test production and one investigation bore. These bores have been targeting a sand aquifer at a depth of about 200m in a geological feature known as the Menindee Trough. These bores have enabled the assessment of the geology, water quality and available quantity from this deep aquifer. The investigations are now complete.

This work has been done in conjunction with surface and groundwater investigations undertaken by Water NSW.

What has happened and when?

Five test production bores have been drilled at sites MEN1, MEN2, MEN6, MEN 9 and MEN11 (see **Figure 1**) at a depth of about 200m below ground. Pump testing has also been conducted consisting of an initial step drawdown test to assess the aquifer characteristics and to determine a pump rate for the following constant rate pump test. The water entry depth below ground and the pump test rate at each site is outlined in **Table 1**.

Water quality samples have been collected at the sites where a pump test has been conducted. The water salinity, as measured by its Electrical Conductivity (or EC), at these sites ranges between 15,000 and 22,000µS/cm (sea water has an EC of approximately 50,000). Analysis of the full suite of parameters tested is currently being completed.

Additionally, a test bore at site MEN17 (**Figure 1**) was drilled to investigate the extent of the Menindee Trough and the presence of the sand aquifer at this location. This site has been completed as a groundwater level monitoring site. No pump testing of the aquifer was undertaken.

Table 1: Test production bore investigation summary

Site ID	Water entry depth (metres below ground level)	Pump test rate (ML/day)
MEN1	198 – 204	0.9
MEN2	196 – 208	1.8
MEN6	192 – 204	1.8

MEN9	166 – 182	1.8
MEN11	196 – 214	1.9
MEN17	70 - 76	N/A

- The pump test rates for MEN2 to MEN11 reflect the upper capacity of the pump used for the pump test, rather than the potential long term potential of the aquifer at these locations.

Emergency Works and Measures

- Emergency works constructed at Copi Hollow near Menindee in December 2014 will be able supply low salinity water to Broken Hill until November 2015.
- Work is progressing to put in place desalination facilities at Broken Hill that will be able to treat the remaining surface water at Menindee Lakes beyond November 2015.
- The current investigations into shallow groundwater are now providing positive results, and could extend Broken Hill's water supply beyond mid-2016, if required.
- Up to two years of low salinity groundwater is available underneath the lake bed of Lake Menindee following drilling and exploration activities by WaterNSW.

Inflow Outlook

- Inflows from rainfall over the Easter weekend restarted flows along the main river channel and, in combination with early-May rainfall, are expected to contribute a further 15,000 to 20,000 megalitres to Menindee Lakes from May through to July.
- **With these inflows, Broken Hill's surface water supplies are assured for the remainder of 2015 and, once desalination works are in place, can be provided through to the end of winter 2016.**

Current Flow Situation

Current river levels and flows (as at 29 May 2015)

Location	Height (m)	Flow (ML/d)	EC (uS/cm)	Comment - River Level
Mungindi	3.42	559	207	Falling (Peak 2,242ML/d on 16/5)
Collarenebri	1.89	802	215	Falling (Peak 2,069ML/d on 19/5)
Walgett	2.63	1,020	182	Falling (Peak 1,355ML/d on 21/5)
Brewarrina (total)	2.4	907	362	Falling (Peak 940ML/d on 28/5)
Bourke	4.13	473	305	Steady
Wilcannia	1.07	973	413	Falling (Peak 1,897ML/d on 15/5)
Weir 32	1.07	7.7	2,044	No flows targeted past Weir 32
Burtundy	1.1	^-	916	Block bank near full

Location of Deep bore drilling



Who can I contact for more information?

For further information regarding the groundwater investigation program, please call:

NSW Office of Water: Bunty Driver T 0407 403234

www.water.nsw.gov.au

© State of New South Wales through the Department of Trade and Investment, Regional Infrastructure and Services 2014. You may copy, distribute and otherwise freely deal with this publication for any purpose, provided that you attribute the NSW Department of Primary Industries as the owner.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (March 2015). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the Department of Primary Industries or the user's independent adviser.

Published by the Department of Primary Industries, a division of NSW Department of Trade and Investment, Regional Infrastructure and Services.