

## Summary

The township of Bellbrook, 43km west of Kempsey, has been drawing its water supply from shallow bores situated in the bank of the Macleay River.

Until recently, tests have shown that it contained levels of arsenic below the recommended level of the Australian Drinking Water Guidelines (ADWG), but recent tests have shown these levels slightly above the recommended level. Surrounding areas which also have town water supplies, are not experiencing the same situation.

Macleay Water has ceased pumping from these bores since this was found, and is currently drawing water directly from the riverbed. The water at this location has shown levels of arsenic below the ADWG levels.

Weekly and fortnightly microbial testing have commenced by Macleay Water to ensure that the water supply continues to be suitable from this location. Macleay Water is also currently investigating relocating the bores to more suitable locations.



This information has been supplied by Kempsey Shire Council, in conjunction with the North Coast Area Health Service's Public Health Unit.



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## *Arsenic in Bellbrook's Water Supply*

### *Information for the Residents of Bellbrook*



Bellbrook township's water supply has been drawn from shallow bores in the bank of the Macleay River. Testing of this water recently showed that it contained levels of arsenic slightly above the level recommended in the Australian Drinking Water Guidelines (ADWG). Other town water supplies in the near vicinity are not experiencing this situation. To address this situation, Council has ceased pumping from the bores and commenced drawing directly from the river which has shown levels of arsenic below ADWG.



**Routine testing of Bellbrook's water in March showed an arsenic concentration of 0.015mg/L (ie 15 micrograms per litre), which is above the ADWG level of 0.007mg/L. Regular testing of Bellbrook's water before March 2005 had not shown these higher arsenic levels. There is no evidence that the recent levels of arsenic and the period of time that the arsenic has been at these levels would cause health concerns for Bellbrook residents.**

**Guideline levels include significant safety factors. The guideline level for arsenic is the amount that can be present in water that, based on present knowledge, does not result in any significant risk to the health of a person over a lifetime of consumption.(1)**

The higher levels of arsenic were found in the Bellbrook water in March 2005 during routine water quality testing. Following this, a weekly testing program has been established by Kempsey Shire Council and the North Coast Area Health Service's Public Health Unit. Results from this testing program continue to show levels above the guideline. At the same time the water supply reservoir and lines have been thoroughly cleaned, the bores have been assessed and the river water tested.

The intensive testing program will continue into July 2005 to assist the investigations into the source of the arsenic and to identify the best water source for a new permanent water supply for the Bellbrook township. The need for further testing will be reassessed in late June.

In response to this situation Council, in conjunction with the Public Health Unit, has ceased drawing water from the bores and has commenced drawing water directly from the Macleay River. Recent tests of river water indicate arsenic levels below the ADWG level. If needed, water will be carted from a neighbouring water supply to top up the Bellbrook supply in times of poor river water quality (eg following heavy rain).

The ADWG level recommended for arsenic is 7 micrograms per litre (7ug/L, 0.007 milligrams per litre (mg/L) or 7 parts per billion). Seven parts per billion is equivalent to about one and a half teaspoons of arsenic in an Olympic swimming pool. Arsenic at this or lower concentration is considered to present no threat to health over lifelong exposure. Investigation and action should be taken if the level is exceeded. The highest level detected in the Bellbrook system during recent monitoring has been 24 micrograms per litre (24 parts per billion). There is no evidence that drinking water with this level of arsenic over a relatively short term (under 1 year) would cause problems for people's health.

It is not clear where the arsenic is coming from, although further investigations are being conducted by Kempsey Shire Council. Arsenic is a common, naturally occurring element that is widely distributed throughout the earth's crust and may be present in natural water sources. Arsenic in water has no smell or taste. Humans normally take in small amounts of arsenic from the air we breathe, the water we drink and the food we eat. Food is our largest source of arsenic. When arsenic is consumed, about 45-85% of it is lost in the urine in 1 to 3 days.



Exposure to high levels of arsenic over a long period of time may produce health problems. A number of studies have looked at the health effects on groups of people drinking water with high concentrations of arsenic (greater than 300 micrograms per litre). These concentrations of arsenic are more than ten times greater than the highest level found in Bellbrook. The effects from drinking such water over periods of 5 to 10 years can include skin lesions, vascular disease, effects on the nervous system and possibly cancer of other organs. (1)



The temporary alternative water supply drawing directly from the Macleay River will protect the Bellbrook community from any further exposure to drinking water containing increased levels of arsenic.

While it is very unlikely that this situation will affect people's health, anyone who has concerns for their health should see their General Practitioner.

(1) National Health Medical Research Council and National Resource Management Ministerial Council, Australian Drinking Water Guidelines 2004, endorsed 10-11 April 2003.

For further information people can contact Kempsey Shire Council on 6566 3200 or the North Coast Area Health Service's Public Health Unit on 6588 2750. An excellent fact sheet is available on page 277 of the Australian Drinking Water Guidelines (<http://www7.health.gov.au/nhmrc/publications/synopses/eh19syn.htm>)