



DIRECTOR SHIRE SERVICES REPORT

13 March 2007

DSS6	BELLBROOK WATER
	FILE: 217 AMB {Folio No. *}

SUMMARY:

This report provides Council with an explanation of the proposed future direction for the Bellbrook Water Supply following the source water contamination issues.

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DESCRIPTION:

Over the last 2 years, Macleay Water have been managing a source water contamination issue in the Bellbrook water supply. Over this time safe alternative water sources have been obtained to ensure drinking water supply remains within the Australian Drinking Water Guidelines (ADWG). In late 2006, Macleay Water staff met with NSW Health staff (Population Health Unit, Port Macquarie and Sydney) to broker a future direction following analysis of the fourth project monitoring regime for the water supply. Several aspects of the discussions with NSW Health required further investigation and these have now been determined sufficiently to enable Council's consideration of the proposed future direction for the Bellbrook water supply.

The meeting with NSW Health in late 2006 had the objectives of setting the future direction of the water supply, discussing the project monitoring data and pre-empting community concerns. Project monitoring is the technical (NSW Health) term for a specifically approved investigation / sampling programme. Four project monitoring programmes were conducted for Bellbrook between mid 2005 and September 2006, each taking weekly or fortnightly samples for chemical analysis in the NSW Health labs in Sydney. Data analysis from Macleay Water and NSW Health's areas of expertise were tabled and various areas of concern heavily discussed.

Both parties agreed that the contamination source may never be identified. Due to the scale of the catchment, both within the Kempsey Shire Council jurisdiction and several other council's jurisdictions, considerable funds could be spent in determining the contaminations source of the contamination to no avail. Instead it was agreed the best course of action was to focus efforts on dealing with the impact of the contamination upon the water supply.

An area of concern discussed was the contamination itself. NSW Health's predominant focus was upon breaches of the ADWG health limits. Macleay Water's focus was upon both health and aesthetic ADWG breaches because coloured, odorous water is not acceptable to the customer. In developing the future direction, it was agreed that an address of both aspects was necessary although NSW Health's concurrence would focus upon Macleay Water meeting the ADWG health requirements.

In terms of the contamination and the ADWG health limits, the following was agreed upon. NSW Health regards that the contamination was only a significant risk of harm over a lifetime of consumption at above guideline limits. The contamination was not carcinogenic (for example not >0.3mg/L for Arsenic), as low doses were detected above ADWG health guidelines (ADWG health guidelines for Arsenic is 0.007mg/L). There were no chronic effects, no chronic health risks and no acute health risks. It was a source water supply problem not treatment problem.

The pertinent aspects of the project monitoring discussions are listed below. It should be understood that whilst testing of the North Bore occurred, it was not linked into the water supply. During this period of testing water was sourced directly from the river:

- contamination was associated with larger river events
- after a river event there was a 21 day turbidity lag to enable the use of the river source water
- Despite naturally occurring relatively high levels of the contaminant compounds within local soils, local rainfall events were not resulting in the contamination
- Contamination was predominantly the influence of large rainfall events in the upper catchment and tablelands
- Although contamination issues were not found in the fourth project monitoring and the bore source water was meeting guidelines, there was an increasing trend towards higher levels of contamination.

The meeting can be summarised by the following points:

- NSW Health would provide research and develop guideline limits for the North Bore source water in addition to the ADWG. These additional guideline limits would address the impact upon immunocompromised consumers of the contaminant chemical compounds found within the Bellbrook Water bore source water.
- NSW Health would assist in the submission of an application for specific project monitoring for the Willawarrin and Bellbrook water supplies. The intention would be to predict when contaminant levels would return to within Guideline limits after a major river event. The intention was to complete monthly full chemical analysis at both Bellbrook and Willawarrin.
- That two information brochures be developed. One brochure would inform private bore users of the contamination issues being addressed for the town water supply and the implications for their own private bores. Once the future direction for the Bellbrook water supply was determined, a second brochure to the Bellbrook community would be developed
- Statistical analysis would be completed to determine the river event that would result in contamination and NSW Health would

peer review this work. (Note that Macleay Water was recently unsuccessful in obtaining grant funding for such work and is looking at other means to complete it)

- NSW Health did not think that the Council bore source water was of issue given the precautionary procedures (above points) were in place. NSW Health believed that if residents had concerns with the future direction, they had the option to switch to rain water tanks provided the residents complied with NSW Health's tank water monograph. It was acknowledged that such a move would likely require the resident to top up tanks (buy water from a carter) during dry periods.

Proposed Action

The proposed future direction is multifaceted. The source water would be to being the North Bore. The surface river water would remain as backup source water for the North Bore. Should a river event be experienced weekly full chemical analysis would occur. Should the testing results indicate contaminant levels being above those set down by NSW Health, alternative water source will be utilised until such time as the water quality returned to within ADWG limits. In that period the source water would be river surface water. If disinfection is compromised by turbidity water carting would occur. This operation and the concurrent data collection would need to be reviewed after 12 months to determine whether the best long term solution for the Bellbrook water supply is to construct a water treatment plant.

It is believed the proposed direction would offer operational savings, particularly in regards to water carting. The surface water's turbidity has been found to be influenced by smaller rainfall events, particularly those unlikely to trigger bore source water contamination. However this potential saving is based on the rainfall patterns experienced over the last two years. It is possible that these savings may not be realised if the recently experienced drier weather patterns alter with the conclusion of the El-Niño patterns.

The cost of the additional laboratory analysis would be the subject of an application to NSW Health. If successful, NSW Health would bear these costs. Regional Office of NSW Health have indicated that they would support Council's application.

The proposed future direction is recommended to Council on the grounds of risk management. Whilst there is a risk that the next 12 months may see a return to 'normal' or possible wetter weather, it is believed that if a water treatment plant becomes the long term solution, data on the variation of contamination would be invaluable to the correct design of a water treatment plant. Continual instead of segmented data would be a significant asset.

The alternative is not to proceed along this proposed future direction and allocate funding to construct a water treatment plant immediately. Discussions with DEUS on the general concept of such a package plant indicate the likely cost would be in the order of \$800,000. Process equipment appears to be in the order of \$150,000, the remaining costs being a combination of the associated contact, flocculation and balance tanks, civil works and design costs. A new treatment plant would also pose additional operational costs, although a high tech remotely

accessible treatment plant would be proposed with the likely operational time returning to a similar regime of pre-contamination i.e. 2-3 part day visits per week onsite. Although this option is not recommended, such an option may be the preferred by the Bellbrook community.

The additional costs for the Bellbrook water supply do not currently warrant an immediate construction of a water treatment plant. Total operational costs for 2006/07 amount to \$66,606 and for 2005/06 \$107,331 (includes \$20,000 related to bore relocation). It is likely that operational costs for 2006/7 will amount to approximately \$100,000. In 2006/7 \$36,481 has been recovered to date from emergency water carting funds. The 'normal' operational costs for Bellbrook would be in the order of \$15,000. Effectively there is a likely additional cost of \$50,000 for the operation of the Bellbrook water supply for a further year as outlined in the proposed future direction.

REPORT IMPLICATIONS:

- ***Environmental***

The proposed future direction for the Bellbrook Water Supply will address the environmental impacts upon the bore source water whilst also accumulating further data to assist in the management of the two upriver water supplies.

- ***Social***

The proposed future direction for the Bellbrook Water Supply will enable Macleay Water to continue to ensure safe drinking water is supplied to the Bellbrook community.

- ***Economic (Financial)***

The proposed future direction for the Bellbrook Water Supply will enable Macleay Water to reduce the operational and carting costs associated with the management of this water supply.

DEUS emergency funding has recently been sought for the period August 2006 till end of January 2007 for an amount of \$14,820.

- ***Policy or Statutory***

There are no policy impacts from this report and all statutory requirements are being met.

- ***Director's Review***

The proposed use of the North Bore, during periods when the water supply meets Australian Drinking Water guidelines, will allow Council to undertake additional monitoring of the supply over an extended period to enable determination of the preferred long-term option.

RECOMMENDATION:

- 1 That Council endorse the proposed use of the North Bore as detailed in the report for the Bellbrook Water Supply.**

- 2 That progress reports be submitted to Council every 6 months.

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A P Vermeulen
DIRECTOR SHIRE SERVICES