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ABN 13 108 907 580



**Inquiry into the Cost of Supplying Bulk Potable Water to Kalgoorlie – Boulder
Economic Regulation Authority
Level 6 Governor Stirling Tower
197 St Georges Tce
Perth WA 6000.**

SUBMISSION TO ENQUIRY

1. INTRODUCTION

My Company (Specialist Water Services Pty Ltd) has been employed as an independent Company by UUA to investigate product water quality issues from the proposed desalination plant at Esperance. I worked with the Water Corporation and UUA, to establish common water quality targets.

I have 34 years expertise in the Water Corporation, in senior technical management positions, including approximately 25 years specialist expertise in all aspects of Water Quality and Treatment in WA.

This current submission is completely independent of any party in this Investigation. I believe I can provide specialist expertise, which can be considered jointly by all parties to this Investigation.

2. OVERVIEW OF UUA PROPOSAL:

Since hearing of this Proposal to supply water from Esperance to Kalgoorlie, I have always believed it is a visionary proposal, in the following areas:

- Supplying water from desalination is completely independent of drying climate. It is clear from climate studies that the South West of WA will continue to have substantially reducing yields in both surface and groundwaters. This proposal is therefore consistent with the Water Corporation's view of Security through Diversity.
 - This proposal relies on conventional desalination technology, and is a robust technology proposal, unlike recent proposals to transport water from the North, via a canal.
 - Supplying the Goldfields area from desalination will release substantial scheme yield for use in the Perth region.
 - This proposal has the potential to have huge water quality benefits, as discussed below, if considered in the medium to longer term. Since the scheme has a 50 year planned horizon, this timeframe should be considered by all parties, when considering the benefits.
 - The proposal also has huge potential economic benefits, in terms of development of this whole Region. Again, a 50 year timeframe should be considered by all parties.
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3. WATER QUALITY ISSUES:

The current supply from Mundaring to Kalgoorlie, via the Goldfields and Agricultural Water Supply System, is chloraminated, as free chlorination would not be able to raise a chlorine residual for even a small proportion of the route.

Even with chloramination, there is currently a struggle to maintain chlorine residuals, especially on the side routes, where the water moves at slow velocities.

The current Australian Drinking Water Quality Health related Guideline for trihalomethanes (chlorine by product, with possible links to cancer, at very high levels), is 250 ug/L. The USA Guideline has been dropped to 80 ug/L, and the trend throughout Europe is to have very low Guideline levels. It is reasonably anticipated that there will be strong pressure on bringing down the Australian Guideline substantially, in the future. This may impact in 5-10 years, as a reasonable assumption.

The implications on the level of water treatment required, if a Guideline of 80 ug/L is adopted in Australia, will be extensive, and high levels of treatment will be required at most sources. This would include treatment such as the MEX process, for advanced level organics reduction.

The G&AWSS currently meets the 250 ug/L Guideline, but there would be no chance of meeting a much lower Guideline value, as above, without high level treatment at the Mundaring source.

It is important that these issues be considered in a long term scenario, consistent with the proposed life of this scheme, of about 50 years.

4. WATER QUALITY FROM ESPERANCE DESALINATION PLANT:

Desalinated water, by reverse osmosis, is extremely low in organics. This is very important, as organics react with chlorine to form trihalomethanes. Desalinated water therefore generates very low levels of THMs, and the chlorine demand is extremely low. This means that very low levels of chlorine can be dosed at the source, and the chlorine residual will be maintained in the system for a very long time, with minimal decay.

The nett result of these properties of desalinated water, is that it is extremely suitable for distribution throughout long networks, while minimising any risk of high THM levels. This water should be able to meet any proposed reduction in THM Guidelines, to about 80 ug/L.

5. POTENTIAL FOR DISTRIBUTION OF DESALINATED WATER THROUGHOUT G&AWSS:

When considering this long timeframe of scheme operation, it is quite feasible to consider that Esperance water could supply the whole G&AWSS, by reverse flow through the existing scheme. This would have enormous benefits to water quality control throughout the scheme, as discussed above.

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The approximate cost of an advanced water treatment plant at Mundaring (with MIEX) would be approximately \$60-70 million, with operating costs in the order of \$3 million per year.

If Esperance water supplied this scheme, there would be no need for this advanced treatment plant, and therefore this cost could be added to the savings to the Water Corporation, by adopting this desalination proposal.

The nett cost to the State was quoted as \$55.9 million, so this saving would substantially counteract this cost.

6. POTENTIAL ECONOMIC DEVELOPMENT OF THE GOLDFIELDS REGION:

UUA has commissioned an independent economic consultant to examine the potential financial benefit to the Esperance – Goldfields Region. The result was an estimated \$2.5 billion financial benefit to the Region.

This level of potential benefit is an extremely important issue for the WA Government, and should be examined in depth by the Department of Industry and Resources, as an integral part of this Study. The limiting of this issue to just the ERA may not give the broad picture required, for this extremely important Proposal, for the State.

7. SUMMARY:

This Proposal is Visionary, as well as being potentially economically viable, in conjunction with the broader picture of overall benefit to the State.

The impacts on water quality will be extremely beneficial, and, in the context of the timeframe envisaged for this scheme, the supply of excellent quality water to the whole G&AWSS would be viable. This would result in the saving of a major, advanced treatment plant at Mundaring, substantially reducing the nett loss quoted in the ERA Report.

B K O'LEARY
DIRECTOR
SPECIALIST WATER SERVICES PTY LTD
26 JULY 2005
