



## Standing Committee on Environment and Public Affairs

GPO Box A11

Perth WA 6837-

Re: Petition No 166 Cessation of the chlorination of Busselton's Water Supply

Dear Committee Members,

The following is my submission in support of Petition 166. My submission will address ; the soundness of the risk assessment analysis, findings and reports of consultants Hunter Water

Consultants Hunter Water did not give adequate consideration to the disinfectant chlorine dioxide, in their presentation to Busselton Water. The disinfectant could be used instead of chlorine. It is safer than chlorine, and a better choice, as it kills all pathogens at a dosage rate lower than that of chlorine. At the recommended dosage rates, chlorine dioxide has no detectable taste or odour and would therefore be far more acceptable to consumers.

All references to chlorine dioxide in this submission are about the gas now safely generated by modern methods, by which there is no possibility of an explosion. It is in fact safer than chlorine to transport, handle and store.

The modern product now goes under various names which are patented. I am most familiar with the one known as CleanOxide 75. Other brands are EOxide 75, TwinOxide and Miox. Some consist of 2 liquids which are stable on their own, and some are granules, also stable

When these precursors are introduced separately into a sealed container of water, chlorine dioxide is produced as a dissolved gas. It is 99.9% pure and contains no by-products such as free chlorine and chlorite. It bears no resemblance to chlorine and is a completely different substance, in the same way that sodium chloride or common salt, is completely different from chlorine

A litre of the prepared chlorine dioxide may cost more than a litre of chlorine gas. However the dosage rate required is substantially lower than that of chlorine, typically .05mg/L to .3mg/L. The rate for chlorine is typically 1mg/L and is permitted up to 5mg/L, which is beyond palatability.

Chlorine dioxide is safer than chlorine to produce

It is not corrosive, therefore all the equipment required for storage and distribution will be unaffected by the chemical and so require less maintenance Chlorine, on the other hand is highly corrosive.

Chlorine dioxide is a wide spectrum biocide, eliminating bacteria, fungi and viruses, and all the pathogens which remain unaffected by chlorine.

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its' biocidal activity is constant over a broad pH range, i.e. from 4 to 10. Chlorine is optimally effective in a narrow range around a pH of 7. As you may know Busselton's water has a high pH of 8.6. As a result, chlorine added to our water is not entirely effective as a disinfectant.

Biofilm exists in our water pipes, and can harbor amoeba cysts. Chlorine dioxide removes biofilm, kills the cysts of any Naegleria species and prevents biofilm reforming. This product also destroys phenols, algae and chloroform and chloramines if they are present.

Chlorine dioxide does not release undesirable gases from hot showers into the atmosphere or exacerbate asthma. It contains no free chlorine, no chlorates and negligible chlorite when diluted at the recommended rate. It has no detectable taste or smell.

The product is readily available from a company in Perth. It is already being used by the Water Corporation to disinfect water for some Aboriginal communities, and mining companies are also expressing interest in this product.

In conclusion, as a water disinfectant chlorine dioxide has so many advantages over chlorine, that it is difficult to understand why it was largely ignored by Hunter Water and Busselton Water Board.

Source; Natural Water Solutions, Mt. Hawthorn, WA



Margaret Farquharson

1 September 2012

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