

# WATER FLUORIDATION IN VICTORIA



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## ABSTRACT

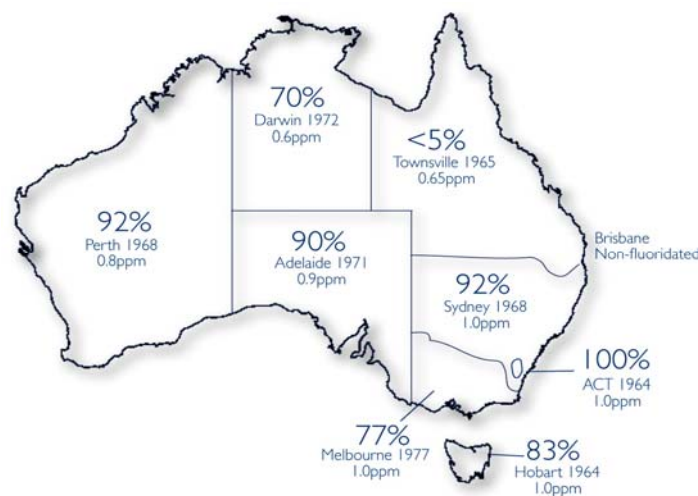
It is Victorian Government policy to extend water fluoridation to those areas of rural and regional Victorian currently without this important public health initiative. Since 2005, a number of towns have commenced water fluoridation. Furthermore, the Department of Human Services has recently updated the *Standards for Fluoridation of Drinking Water Supplies* document which is now out for consultation. This paper will outline water fluoridation policy in Victoria, summarise recent, current and proposed activity and outline the proposed new *Standards for Fluoridation of Drinking Water Supplies* document.

## 1.0 INTRODUCTION

Water fluoridation has been described as one of the top ten achievements in public health in the 20<sup>th</sup> Century (Centers for Disease Control, 1999). For a number of years, this important public health initiative has played a pivotal role in reducing dental decay in a number of countries, including Australia (Australian Research Centre for Population Oral Health, 2006). World-wide, approximately 350 million people benefit from artificially fluoridated water, while at least an additional 50 million people benefit from naturally fluoridated drinking water (British Fluoridation Society, UK Public Health Association, British Dental Association and Faculty of Public Health, 2004).

## 2.0 WATER FLUORIDATION IN AUSTRALIA

In Australia, artificial water fluoridation first commenced in Beaconsfield, Tasmania, in 1953, with Hobart and Canberra being the first capital cities to commence water fluoridation in 1964. While Queensland currently has very little water fluoridation coverage, recent announcements have indicated that over 80 per cent of Queenslanders will benefit from water fluoridation by the end of 2009 (Queensland Health, 2008). Figure 1 shows water fluoridation coverage in Australian capital cities with dates of introduction.



**Figure 1:** *Water fluoridation in Australian capital cities with dates of introduction.*

## 2.1 National policy context

Given the significant dental health benefits provided by water fluoridation, all Australian Health Ministers, including the Federal Health Minister, have endorsed *'Healthy mouths, healthy lives: Australia's National Oral Health Plan 2004-13'* (Australian Health Ministers' Conference, 2004). Action Area 1.2 of this Plan refers to water fluoridation, stating: *'Extend fluoridation of public water supplies to communities across Australia with populations of 1000 or more.'*

## 3.0 WATER FLUORIDATION IN VICTORIA

As Victoria is a signatory to the National Oral Health Plan, it is Victorian Government policy to extend water fluoridation to those areas of rural and regional Victoria currently without this important public health initiative. Under the *Health (Fluoridation) Act 1973*, the Secretary to the Department of Human Services has the power to direct Water Supply Authorities to commence water fluoridation. Funding for fluoride plant construction is provided by the Department, while individual Water Supply Authorities are responsible for purchasing of approved fluoride chemicals and maintenance of fluoride plant infrastructure.

Three Victorian towns have optimal, or near-optimal, naturally fluoridated drinking water - Portland, Port Fairy and Barnawartha. In Victoria, the optimal fluoride level is 0.8-0.9mg/L, depending on the annual average maximum air temperature. Only fluoride compounds approved in the *Australian Drinking Water Guidelines 6 2004* can be used to fluoridate a drinking water supply (National Health and Medical Research Council, 2004). These are fluorosilicic acid ( $H_2SiF_6$ ), sodium fluoride (NaF) or sodium fluorosilicate ( $Na_2SiF_6$ ).

Residents in Bacchus Marsh were the first Victorians to receive artificially fluoridated drinking water in 1962, while Melbourne commenced water fluoridation in 1977. While a number of Victorian towns commenced water fluoridation in the intervening years, in 2004 approximately 25 per cent of Victorians still did not benefit from fluoridated drinking water (DHS, 2004). Figure 2 shows water fluoridation coverage in Victoria, at time of publication, with dates of introduction.



**Figure 2:** *Water fluoridation in Victoria with dates of introduction*

### 3.1 Recent activity

Since 2005, a number of Water Supply Authorities have been directed to commence water fluoridation. Following direction, approximately one year is required for individual Water Supply Authorities to build, test and commission each fluoride plant.

Towns which have commenced water fluoridation since 2005 are:

- 2006: Robinvale, Horsham, Warragul, Moe, Morwell, Traralgon and Sale.
- 2007: Wangaratta and Wodonga.
- 2008: Castlemaine.

A number of Water Supply Authorities in the following towns have been directed by the Secretary to commence water fluoridation:

- 2007: Warrnambool.
- 2008: Hamilton, Yarrawonga, Geelong, Ballarat and Colac.

### 3.2 Future activity

The Department is currently liaising with a number of Water Supply Authorities that manage water supplies in the following towns:

- Swan Hill, Benalla, Kerang, Mildura, Seymour, Lakes Entrance, Bairnsdale, Cobram, Kyabram, Maryborough, Ararat, Wonthaggi and Stawell.

These towns are a part of the current water fluoridation program and, once fluoridated, approximately 90 per cent of Victorians will have fluoridated drinking water.

Water Supply Authorities in other Victorian towns may also contact the Department to discuss water fluoridation.

## 4.0 PROPOSED STANDARDS FOR FLUORIDATION OF DRINKING WATER SUPPLIES

The *Health (Fluoridation) Act 1973* regulates the fluoridation of public water supplies – specifically providing the Secretary to the Department with the power to direct Water Supply Authorities to commence water fluoridation in accordance with the requirements as set out in the Act. Under this Act, a Water Supply Authority is required to provide the Department with proposed fluoride plant plans and specifications before construction of a new fluoride plant or the significant upgrade of an existing plant. The Department considers the plans and specifications in relation to public health and the ability of the Water Supply Authority to operate the plant satisfactorily.

Until now, these requirements have been set out in the 1993 document *Standards for Fluoridation of Public Water Supplies*, published by the predecessor department of the Department of Human Services. The Standards document has recently been updated by the Department and is currently out for consultation with the water industry.

The proposed Standards are designed to ensure the safe and effective operation of a fluoridation plant. To assist a Water Supply Authority meet this objective, the Standards:

- Specify the optimum fluoride levels for drinking water supplies and the design control limits for water fluoridation plants

- Specify the minimum requirement for the safe and effective addition of fluoride chemicals to drinking water supplies, covering the design, installation and operation of a fluoridation plant

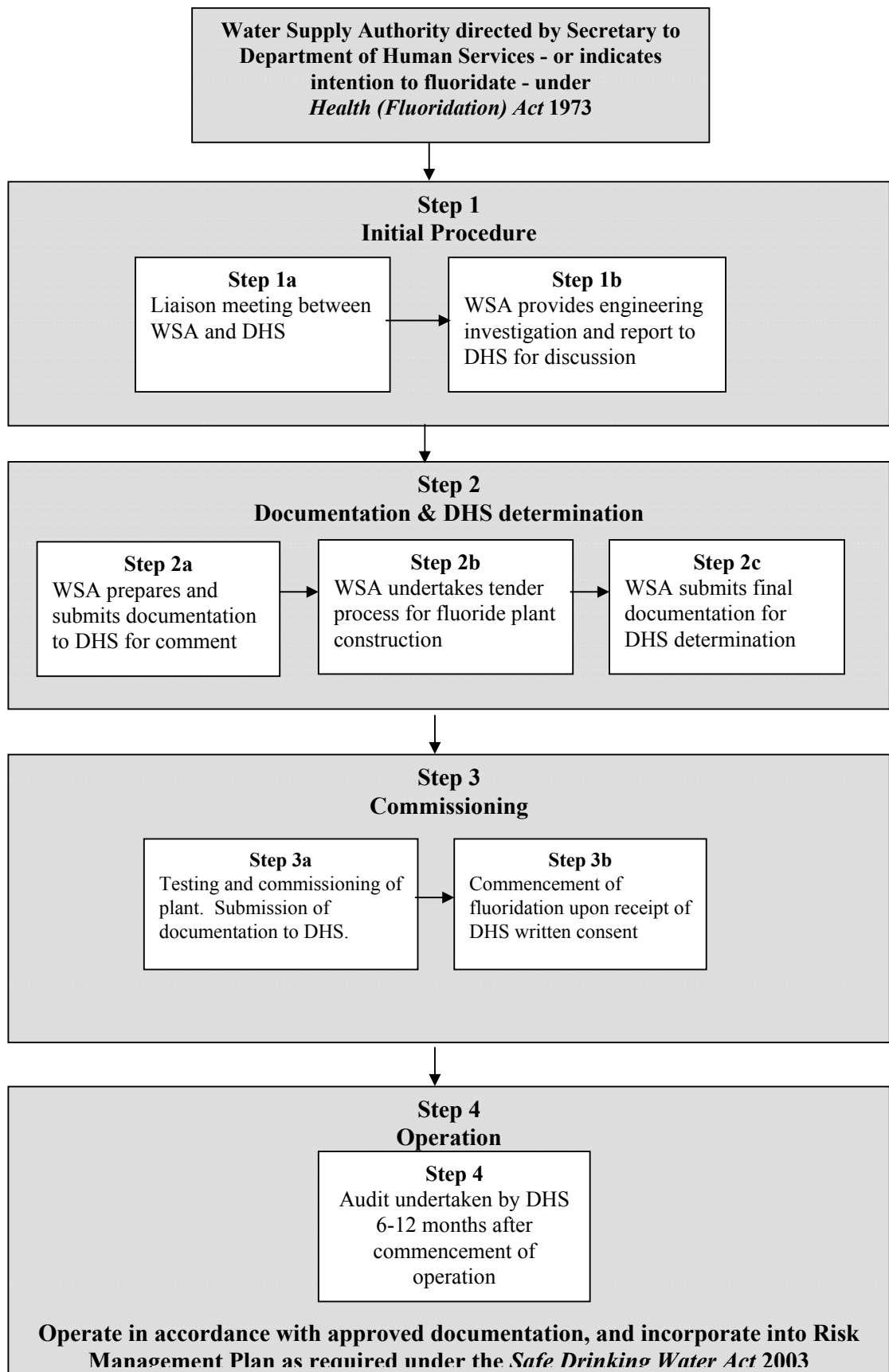
A key feature of the proposed Standards is the requirement to adopt a preventive risk management approach to ensure the safe and effective addition of fluoride into the drinking water supply. This risk management philosophy integrates the practice of water fluoridation with the risk management requirements of the *Safe Drinking Water Act 2003*.

Another feature of the proposed Standards concerns reporting requirements. It is proposed that fluoride sampling reporting be aligned with that used for other water quality parameters, as currently required under the *Safe Drinking Water Act 2003*.

The proposed Standards describe:

- The regulatory framework for water fluoridation
- Requirements for the design and control of fluoridation facilities
- Requirements for plant operation, including monitoring, training and occupational health and safety issues
- Documentation for plant approval, record keeping and reporting requirements.

The proposed Standards have been designed to assist Water Supply Authorities prepare fluoridation plant plans and specifications for Departmental consideration. Figure 3 summarises the process Water Supply Authorities are required to undertake once the decision to fluoridate has been made.



**Figure 3:** *Flow chart describing water fluoridation process for Water Supply Authorities*

It is proposed that Water Supply Authorities, where fluoride is added, provide the following information in their annual reports:

- An analysis of the monitoring data for fluoride collected from the treated water at the plant
- A comparison of the monitoring data and a statement on the accuracy and reliability of the means of analysis
- A summary of incidents and emergencies including fluoride plant shutdowns, failures in the control strategy, spills and corrective actions taken.

**The proposed Standards document is available online at:  
<http://www.health.vic.gov.au/environment/water/fluoridation/standards>**

## 5.0 CONCLUSION

Water fluoridation is a vital public health initiative, which significantly improves the dental health of the population. Water Supply Authorities are important stakeholders in improving the dental health of Victorians. The Department is keen to work cooperatively with the water industry to ensure the *Standards for Fluoridation of Drinking Water Supplies* document provides clear advice so that water fluoridation can be conducted safely and effectively.

## 6.0 REFERENCES

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