



Case Study on Water Safety Plan Implementation and Lessons Learned

Auditing WSPs in Victoria, Australia

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1) Background information and context

Country: Australia
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General information about the water sector including regulatory/oversight authorities and consumer characteristics: The country of Australia is divided into five states and two territories. Each state and territory has a state or territory government; there is also a central national government (Commonwealth Government). The rest of this case study is specific to the Australian state of Victoria. The water industry in Victoria consists of 19 government-owned water corporations. Two of these corporations provide bulk supplies of untreated water, primarily for non-drinking purposes. The other 17 corporations supply water of a drinking water standard to approximately 5 million people (or greater than 90 per cent of the state's population). The roughly other 10 per cent of the population self manage private water supplies (for example, using water tanks, which are usually filled with rainwater, or by utilising a local groundwater supply). The regulatory framework, which covers the 19 government-owned water corporations, also covers Parks Victoria, which manages Victoria's state and national parks, and the state's five alpine resorts, who also supply drinking water to the public. This brings the total number of regulated entities under the framework to 25. At this time, there are no privately-owned entities in Victoria which supply drinking water to the public. Regulatory oversight of the industry is vested in four government agencies. The Department of Sustainability and Environment (DSE) has a regulatory role in the governance of the water corporations. The Essential Service Commission (ESC) is the economic regulator, who set the prices that water corporations can charge for water and wastewater services. EPA Victoria is the environmental regulator. The Department of Health is the health regulator, whose role it is to ensure that the water corporations provide safe drinking water to the public. Department of Health performs its regulatory role through the administration of Victoria's <i>Safe Drinking Water Act 2003</i>, and associated regulations.

2) Description of the WSP initiative

Rationale and scope of the WSP:

Reason/motivation for implementation:

The impetus for the development of Victoria's current drinking water quality regulatory framework was a report in 2000 by Victoria's Auditor General, entitled, *Non-metropolitan urban water authorities - enhancing performance and accountability*, which identified that different drinking water quality standards were being applied to non-metropolitan urban water authorities, as compared to the standards being applied to those water authorities supplying drinking water to the state capital Melbourne.

In response to the report, the state Government committed to implementing a new regulatory framework for drinking water quality. The result was the *Safe Drinking Water Act 2003* (the Act). The Act commenced on 1 July 2004.

The core aspect of the Act was the adoption of risk management plans. In the context of this discussion, the risk management plan is equivalent to a water safety plan (for ease of terminology, from now on, the risk management plans will be referred to as water safety plans). The driver for inclusion of water safety plans in the Act was that during development of Victoria's regulatory framework for drinking water quality, Australia's national guideline document, the Australian Drinking Water Guidelines (ADWG), was under revision, and the cornerstone of that revision was the adoption of a risk-based approach to the management of drinking water quality, as articulated through the preparation and implementation of water safety plans for the supply of safe drinking water. The revised version of the ADWG was the 2004 version. A 2011 version of the ADWG has been released.

Description of any existing legislation/regulations related to WSPs:

Section 7 of the Act requires the state's water suppliers (that is, the water corporations who supply drinking water to the public) to prepare and implement water safety plans for their supply of drinking water to the public. The water safety plans had to be prepared and implemented by 1 July 2005.

The required content of the plans is detailed in the *Safe Drinking Water Regulation 2005* (the Regulations). The required content is based on the risk management elements that are included in the Framework for Management of Drinking Water Quality, as detailed in chapter 3 of the ADWG. This framework is equivalent to the risk management framework described in WHO's *Guidelines for Drinking Water Quality* (2011).

To verify that the water safety plans have been prepared and implemented as per the requirements of the Act and Regulations, the Act allows for independent audits of the water safety plans.

The Act also requires the water corporations and the Department of Health to produce publicly available annual reports on drinking-water quality and the audit findings. This is further described in section B.

Application coverage area:

Every drinking water supply in Victoria that is managed by a regulated water supplier is required to have a water safety plan. As described in part 1, regulated water suppliers include the 17 government-owned water corporations serving more than 90 per cent of the state's population (about 5 million people) as well as Parks Victoria and the state's five alpine resorts.

Water supply components covered in the WSP (e.g. catchment, water intake, treatment, distribution, storage, consumer point of use, etc.):

The water safety plans cover risks to drinking water quality from catchment to consumer.

Other management systems in place within the water provider (ISO 9001, 14001, 22000, etc.):

In terms of the quality management system that the water supplier uses to manage risks to drinking water quality, water suppliers are free to use whatever management system suits their needs (ISO 9001, 14001, 22000, etc). That is, the type of quality management system that is used to underpin the water safety plan is not specified or mandated by the Act. Most water suppliers have chosen a system that is based on

HACCP principles, which is guided by the Framework for Management of Drinking Water Quality, as detailed in the *ADWG*.

Details of the WSP:

Description and timelines for development, implementation, re-review, etc.:

The Safe Drinking Water Act commenced on 1 July 2004 and the state's water suppliers were required to develop their water safety plans by 1 July 2005. In order to ensure that the water safety plans were developed and implemented as per the requirements of the legislation, the Act allows the Secretary to the Department of Health to request that a water corporation undertake an independent audit of their risk management plan. To support the audit process, the Department of Health assisted in the development of a national auditor certification scheme, which was launched in April 2007. The scheme is administered by RABQSA.

As described in the Act, the audit initiation process requires the Department of Health to request that the water corporation undertake an audit. The water corporation then submits to the Department the name and qualifications of the auditor(s) who they would like to conduct the audit. This auditor must have met all qualifications as further described in the audit guidance note produced by the Department of Health as well as complying with all conflict of interest criteria. The Department then, after reviewing the application, either approves, or does not approve, the auditor(s).

The audit process consists of determining:

- whether the plan has been prepared and implemented in accordance with the requirements of the Act and the Regulations;
- whether the plan has been reviewed and, where appropriate, revised;
- whether the plan adequately identifies the nature and level of hazards and risks for each of the water supply systems covered in the scope of the audit; and
- whether the control measures identified in the plan are in place operationally and are adequate to reliably control water safety risks.

Two rounds of risk management plan audits have now been undertaken. In the first round of audits, conducted in 2008, 10 out of 25 audits returned a result of non-compliance. Common reasons for non-compliance were that the water safety plan document did not meet the requirements of the legislation, that the water safety plan had not been implemented as described within the plan, and in some cases the risks identified in the plan had not been satisfactorily addressed.

In the second round of audits, conducted in 2009, 2 out of 25 audits returned a result of non-compliance, a substantial improvement. A third round of audits has been initiated for the second half of 2011.

Where a result of non-compliance is recorded, the Department contacts the non-compliant water corporation to discuss the issues identified by the auditor. Depending on the nature and severity of the findings the Department may just require the water corporation to submit details of how they will address the findings, or they may require the corporation to enter into a formal undertaking with the Department, under section 30 of the Act.

The Act also requires the water corporations to submit to the Department of Health, and make available to the public, an annual report. The report details their performance in delivering safe drinking water to their customers, including their performance against the state's water quality standards, which are detailed in Schedule 2 of the Regulations, and details of their performance in their most recent risk management plan audit. Further, the Act also requires the Department of Health to produce an annual report giving a statewide perspective on drinking water quality, which is a public document, which the Minister for Health must present to the Victorian Parliament. This report also presents the results of the audits in a

summarised form.

The sixth annual report from the Department of Health was tabled in Parliament in March 2011 and covered the period 1 July 2009 – 30 June 2010. Successive reports have shown an improvement in audit performance and in compliance with the state's water quality standards.

Activities to support development, implementation and/or verification of the WSP:

To support implementation of water safety plans by the water corporations, the Department of Health produced a range of guidance material, though, in most cases, the water corporations had sufficient internal expertise to develop and implement the water safety plans on their own.

To assist in creating a pool of auditors with the appropriate skill set to undertake water safety plan audits, the Department, in collaboration with the Victorian Water Industry Association (VicWater) and the Water Industry Association of Australia (WSAA), approached the international personnel certification body RABQSA, to develop an auditor certification scheme for auditors of drinking water quality management systems. The scheme, which is administered by RABQSA, now has approximately 20 auditors attached to it.

Financial mechanism(s) available/used/required for development and implementation of the WSP:

The water corporations were required to fund the development and implementation of the water safety plans out of their own budgets, but given that these costs were a regulatory requirement, they are recognised as a required business expense, and could be factored into pricing submissions to the economic regulator.

More broadly, each water corporation is required to prepare what is known as a Water Plan. The Water Plan details what activities a water corporation will undertake over the nominated regulatory period, in relation to water and wastewater services, and what prices the water corporation is preparing to charge its customers over the regulatory period in order to undertake these water and wastewater services.

In preparing the Water Plan, the water corporation must consult with the various regulatory agencies, including the Department of Health, with regard to regulatory requirements, and with their customers. A draft Water Plan is then submitted to the economic regulator, the ESC, for approval. The ESC then reviews the draft and makes a price determination, which sets the prices that the corporation can charge for water and wastewater services during the regulatory period.

The current regulatory period started on 1 July 2008 and will conclude on 30 June 2013. Preparations are being made for the draft water plans for next regulatory period, which will start on 1 July 2013 and go through to 30 June 2018.

Next steps of the WSP:

Water treatment operator competency framework: Currently, there are no agreed minimum standards for the qualifications, skills and experience that a water treatment operator needs to have to work in a water treatment facility. In collaboration with the state's water corporations, the Department of Health developed a water treatment operator competency framework that details the agreed minimum standards. The framework is currently being implemented.

Continue to refine the scope of audits to ensure that water safety plans have been adequately implemented: Whilst the first two rounds of water safety plan audits provided a high level of rigour around the content of the plans and their implementation, it has become apparent that the audit process was not rigorous enough when dealing with the operational aspects of water treatment processes that ensure that drinking water is safe. To address this, the Department organised free training sessions for auditors on the operational aspects of water treatment processes, and will be converting this training into a checklist which auditors can use during the next round of audits.

3) Assessment of implementation: benefits and challenges

Benefits

What have been the benefits so far? What other benefits do you expect to see as WSP implementation progresses?

Water safety plans provide a proactive, rather than reactive, framework for managing drinking water quality. They provide transparency, and also enable better targeting of resources since they highlight which water supplies need capital investment and the types of improvement programmes required, including additional water treatment processes.

Water Safety Plans tend to drive improvements in drinking water quality. Across the state, there has been a demonstrable improvement in the quality of many rural and regional water supplies, and this is of significant benefit to rural and regional consumers.

So far the relationship between the Department and the water corporations has been a very positive one, and this has fostered good cooperation with regard to incident management.

At this stage, it is too early to say that there have been any financial benefits, but it is anticipated that shifting from a reactive to a proactive management philosophy should allow for savings over the longer-term as issues can be addressed at an earlier stage.

Additionally, the independent audit process allows implementation to be evaluated and measured, enables continuous improvement and provides for educational opportunities that reinforces a culture of effective risk management in the water industry in Victoria.

How were these benefits achieved, evaluated and measured?

Implementation of water safety plans was achieved through regulation; it is unlikely that implementation would have been achieved universally through a voluntary program. Therefore, having a strong regulatory framework enabled implementation to occur.

The scope of the audit, and the quality of the auditors, determine the effectiveness of the audits.

How long did it take to achieve the benefits?

The Safe Drinking Water Act commenced on 1 July 2004, but the drinking-water quality benefits were probably not apparent until three to four years after the Act commenced. The reason for the time delay is that it takes time to fully implement water safety plans, and for them to drive water quality improvements. Some water quality improvements require capital investment and additional water treatment processes, which take time to build and commission. Other benefits, as described above (transparency, highlighting the need for capital investment) were seen more quickly.

Challenges

Were there any challenges in development and implementation of the WSP (gaps in training and support in materials, lack of senior level support, etc.)? Were these challenges anticipated?

The first challenge was that in the early days there was a lack of senior support within some water corporations, but this issue has now been resolved, as the benefits of the regulatory framework became apparent.

The second challenge was that the smaller the water corporation the more likely it was to struggle with implementation of a water safety plan. The Department of Health provides some assistance and guidance to the smaller water corporations, but often they seek the assistance of external consultants, or enter into mentoring arrangements with larger water corporations.

The third challenge is in the area of catchment management. Some water corporations have the luxury of having closed or restricted catchment areas which they own and manage. Most water corporations,

though, source their raw water from multi-use open catchments, where the risks to drinking water quality often arise from areas that they cannot manage. The management of multi-use surface catchments for multiple water quality objectives is extremely complex. The Department of Health is currently working with other relevant government agencies, especially DSE and the Department of Planning and Community Development (DPCD), to look at various mechanisms which could be used to ensure improved catchment management in those catchments that form part of drinking water supply systems.

The move to a water safety plan-based framework was a significant shift to the way in which drinking water supplies had been managed prior to the introduction of the Act. It was probably to be expected that there would be some resistance to the changes.

How were these challenges solved/how are they currently being addressed?

Ultimately, the requirement to move to a water safety plan-based framework was a legal requirement. Implementation was made easier because the water corporations are government-owned entities, so compliance with a legal requirement was not hard to achieve. The key to the success was building strong collaborative relationships, providing time for implementation to occur and providing consistent guidance.

4) **Assessment of implementation: lessons learned**

What were the lessons learned?

Consult with stakeholders early and often; provide clear guidance on the implementation process and regulatory expectations; recognise that, generally, the smaller the water supplier the more likely that it is that they will struggle with preparing and implementing a water safety plan.

5) **Links / supporting information**

Relevant and supporting documents/references:

[Drinking Water Regulatory Audit Guidance Note: Edition 3 \(2011\)](#)

List of applicable legislation, regulations and policy documents:

[Safe Drinking Water Act 2003](#), [Safe Drinking Water Regulation 2005](#)

Links, if available on line:

More information on Victoria's drinking water quality regulatory framework can be found on the webpage: <http://www.health.vic.gov.au/environment/water/drinking>