WATER INDUSTRY
SKILLS TASKFORCE

Certification for Operators of Drinking Water Systems: Regulatory Options/Position paper

Foreword

This document has been prepared by the Queensland Water Directorate (***qldwater***) on behalf of the Water Industry Skills Taskforce (WIST).

The WIST was established in 2008, with the initial aim of developing approaches to address the growing skills shortage in the Australian water industry. The aims of the WIST have since evolved and new Terms of Reference for WIST were drafted in March 2015.

The *Certification Framework for Operators within Drinking Water Systems* has been a particular focus over the past three years, and the WIST is the current Framework "owner". The WIST has also taken on the role of "owner" of the *Certification Framework for Operators within Wastewater and Recycled Water Treatment Systems.*

Framework ownership is not the WIST's long-term goal, and WIST itself is not a legal entity.

Taskforce membership has changed over time to address emerging needs. The organisations represented on the WIST as at May 2017 are as follows;

- The Queensland Water Directorate (Secretariat and Chair roles)
- The Australian Water Association
- Australian Services Union
- GHD
- Coliban Water
- VicWater
- The Water Services Association of Australia
- The International Water Centre
- The Water Industry Operators Association of Australia
- The NSW Water Directorate
- National Centre for Vocational Education Research

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1. Executive summary

The *Certification Framework for Operators within Drinking Water Systems 2016* was first developed through a thorough industry consultation process undertaken in 2011. As part of a risk management process for drinking water suppliers, it provides a mechanism for recognising the important role that operators of drinking water treatment systems undertake. The Framework defines a minimum standard that operators must attain in relation to qualifications, experience and ongoing professional and skills development.

The Water Industry Skills Taskforce (WIST) is the current owner of the Framework and has provided ongoing support for its implementation since its original development, including championing a number of pilot programs.

The WIST continues to support mandatory Certification for water treatment operators as an important long-term goal, in order to "provide assurance to regulators, communities and consumers that operators are competent to manage drinking water quality, as well as being capable of identifying and responding to water quality risks and incidents." Notwithstanding this position, the WIST recognises that there are a number of other regulatory and quasi-regulatory approaches that could also achieve positive outcomes in the short- to medium-term, and these are the focus of this paper, along with international case studies.

The WIST has prepared this paper as a means of encouraging and promoting a positive dialogue among the urban water industry, regulators and other stakeholders around next steps to progress this important initiative to support the ongoing provision of safe drinking water.

2. Introduction

Occupational licensing and certification programs for high risk job roles are common practice. Such programs are introduced to reduce risk by ensuring that persons employed in high risk job roles are appropriately skilled and qualified. In Australia, roles with responsibility for public health or high occupational health risks, such as electricians, plumbers and pilots, are highly regulated. Yet, there are no regulated national or state level minimum qualification or training standards for drinking water treatment system operators.

This is not the case in other developed and peer nations, such as the United States and Canada, which have a long history of both voluntary and mandatory training and certification programs. The first Certification program for water operators in North America began in 1918 when the state of New Jersey passed an operator certification law (Samuel, 2001). There has since been federal legislation introduced which requires each US state to have a Certification program in place for drinking water operators. In Canada, the first drinking water operator certification program, a voluntary one, was established in 1966 by the Western Canada Water and Sewage Conference (now the Western Canada Water and Wastewater Association) for the three Prairie Provinces (Samuel, 2001). The first mandated Certification program for operators was introduced in Canada in 1983 (in Alberta).

"It has been shown that the most effective way of providing high quality drinking water and protecting public health is to have public water systems operated by certified operators" (U.S. Environmental Protection Agency, 2016).

Although operator Certification cannot eliminate all risks related to the provision of safe drinking water, it does attempt to ensure that operators are sufficiently skilled and trained to be able to both maintain the day-to-day functioning of a water treatment facility, as well as respond in more challenging circumstances where additional skills are required, such as extreme weather events. Appropriately, one of the main components of any comprehensive Certification program is continuing professional development. This ensures that operators maintain up-to-date knowledge and skills in relation to the operation of treatment facilities, which is particularly important given the changing nature of technology in water treatment and emerging research studies on parameters that may impact on drinking water quality.

In comparison to the US and Canada, Australia's approach to operator certification has been very recent and is entirely voluntary for water authorities to adopt. The first voluntary Certification Framework in Australia- the *Victorian Framework for Water Treatment Operator Competencies – Best Practice Guidelines*, was published in August 2010 as a joint initiative of the Victorian Department of Health and the Victorian Water Industry Association. Work on the first national Framework commenced in June 2011 when the National Water Commission (NWC) appointed Government Skills Australia to create a "framework for the certification of operators in potable water treatment facilities." The project was conducted over the subsequent nine months, and included an extensive consultation process involving both a national steering committee and many key industry stakeholders. The project report and "proposed national certification framework for operators within drinking water treatment systems" was released as a voluntary Framework by NWC in December 2012. The Framework underwent a revision in 2016 (incorporating all of the recommendations made as a result of pilot activities conducted in Queensland and NSW in 2013/14) and is now referred to as the *Certification Framework for Operators within Drinking Water Systems 2016*.

The Frameworks developed in Australia can be considered among some of the most comprehensive approaches to drinking water operator Certification that have been established. The primary focus of the Australian Frameworks is competency-based training and there are no requirements for additional exams or tests outside of the competency based training achieved (as exists in the US and Canada). Further, the training is matched to the specific plant and treatment processes that the operator is responsible for, in addition to the mandatory training for crossover operator skill sets (e.g. sampling and water testing).

Operator skilling around Australia is currently handled very differently in each jurisdiction. There are limited established standards and this issue is partly what the national Certification Framework was designed to address. While States and Territories have different reasons for their respective approaches, it is widely recognised that the Certification program in operation in Victoria is the most progressive (in Australia) and it is this program on which the national Framework was substantially modelled.

It is now over four years since the original national Certification Framework was published and voluntary uptake remains slow. Regulatory intervention, or some form of incentivisation, is necessary to ensure the wider adoption of the Framework across Australia.

3. Overview of the current situation

The *Certification Framework for Operators within Drinking Water Systems 2016 (*the Framework) is intended to be broad enough to work within all Australian industry structures, employment structures, and differing regulatory environments in each State and Territory. Its design included consideration of key drinking water risks, and works in concert with both the Australian Drinking Water Guidelines and Vocational Education and Training System. It applies only to Operators (i.e. not engineers or other associated roles).

The Framework does not over-ride any local regulatory requirements, and Water Authorities are encouraged to exceed the minimum standards identified within it.

Certification requires a Drinking Water Treatment Operator to:

- Achieve the necessary competencies specified in the National Water Training Package for operating, controlling, or optimising water treatment processes, and/ or monitoring, sampling and reporting water quality. In simple terms, an operator must hold nationally-accredited training units of competency which match what happens at the treatment plant they operate.
- Demonstrate capability within the workplace through industry experience; and
- Continue to develop knowledge and skills, as well as maintain currency of industry experience. This professional development component is crucial to not only developing individual skills, but in building a broader support network.

An individual Operator's Certification will be awarded by the Certifying Body once competencies are reviewed (and matched to the treatment plant processes), with Certification remaining current for a period of 5 years, after which time the Operator is eligible to apply for re-certification, which is granted if the re-certification criteria are met.

At the time of publication of this document there is no permanent "Framework Owner" or custodian for the activities associated with the Framework. Approaches to federal government departments and the National Health and Medical Research Council have failed to date. The Water Industry Skills Taskforce (WIST) currently acts as the interim Framework Owner.

In May 2016 the Water Industry Operators Association of Australia (WIOA) was "appointed" by the WIST as the national Certifying Body.

Currently, no Australian jurisdiction has implemented the Framework on a mandatory basis, although a number of individual operators have been formally "certified" against the Framework in several states (detailed below). Further details on Certification and operator training requirements across the various jurisdictions are outlined below.

3.1 Queensland

In 2014, ***qldwater*** coordinated a Queensland pilot for the implementation of the Framework and the first group of six Queensland drinking water operators were subsequently certified against the Framework in mid-2015. There have been no further operators formally certified since then, although there are a number of regions currently undertaking the training to achieve certification.

In Queensland, drinking water supply is largely regulated under the *Water Supply (Safety and Reliability) Act 2008* and *Water Supply (Safety and Reliability) Regulations 2011.* Section 104 of the *Water Supply (Safety and Reliability) Act 2008* states:

- "A drinking water service provider must ensure that there are persons engaged in the operation of the provider's drinking water service who have the qualifications or experience prescribed under a regulation for section 586 (2)(d)(i)."

When the Act was originally drafted, the prospect of a mandated minimum standard for qualifications and experience was clearly considered, however there is currently no qualification or experience level prescribed under a regulation for that section.

The Department of Energy and Water Supply (DEWS) *Statutory Guidelines for Drinking Water Quality Management Plans* (DWQMP) refer to a risk analysis that includes "Employee Awareness and training (communications mechanisms, qualifications and training needs)". There is no specific stipulation as to what the awareness and training entails.

DEWS has also published *Guidance on Competencies for Operators within Drinking Water Treatment Systems* in response to ***qldwater's*** advocacy to achieve recognition for operators certified on a voluntary basis. The document states:

- "Whilst the Department does not mandate competencies for water treatment operators, the Department considers the employment of appropriately qualified operators for drinking water treatment systems best practice."
- "Based on the Australian Drinking Water Guidelines, the Government Skills Australia Proposed National Certification Framework 2012 and departmental knowledge of the extent and type of drinking water treatment processes within Queensland, the Department considers that, at a minimum, all service providers should aim to ensure all of their operators have achieved a Certificate II level qualification from the National Water Training Package, with Certificate III qualification from this package being the preferred qualification for operators who are managing conventional treatment systems."

3.2 New South Wales

There are currently 25 operators Certified against the national Framework in NSW, with a number more currently finalising the documentation to allow them to gain Certification this year. There are several more interested organisations who are currently undertaking the training to allow their operators to achieve certification.

The *Public Health Act 2010* and *Public Health Regulation 2012* are the primary legislative instruments for drinking water in NSW. The NSW Best-Practice Management of Water Supply and Sewerage Framework also sets out a number of requirements.

Additionally, the NSW Guidelines for Drinking Water Management Systems 2013 produced by NSW Health and NSW Department of Primary Industries - Office of Water provides guidance on the development and implementation of a Drinking Water Management System (DWMS) for water suppliers in NSW including local water utilities and larger private suppliers. Pages 22-23 of this document outline the requirements in relation to operator training and also references an additional training document entitled NSW Department of Primary Industries – Water – Water Industry Training in Non-metropolitan NSW.

In contrast to other states, the Department of Primary Industries Water (DPI Water), as the NSW regulator, offers training courses to assist regional NSW Local Water Utilities (LWUs) in implementing the requirements of the best practice Framework.

The training is a standard prescribed course which covers a broad suite of water treatment processes regardless of whether an operator would be responsible for the operation of such a process. The training provided has been mapped against the National Water training Package and an NWP Certificate III comprising a standard 11 Units of competence is awarded on completion. Unfortunately, this process does not automatically ensure that the operator receives specific training for all the treatment plant processes that the operator is in charge of. Operators potentially undertake unnecessary training for their job roles, or not enough training, depending on the circumstance. The DPI Water training on its own therefore does not meet the requirements of the Certification Framework.

DPI Water has provided the Certifying Body (WIOA) with documentation acknowledging that provided certain conditions are met, operators certified under the Framework will be recognised as suitable to operate a water treatment works in regional NSW.

3.3 Victoria

There are currently 68 operators certified under the Victorian Certification program, which is estimated by Vic Health to be approximately 10% of all Victorian Operators.

Victoria's *Safe Drinking Water Act 2003* and Safe Drinking Water Regulations 2015 provide the regulatory framework for the management of drinking water quality across the state.

Compliance with the Certification requirements as set out in the *Victorian framework for water treatment operator competencies - Best practice guidelines* assists drinking water suppliers to demonstrate compliance with their obligation to prepare and comply with a risk management plan under the *Safe Drinking Water Act 2003*.

It is understood that the Victorian drinking water quality regulator, the Department of Health and Human Services (DHHS) supports the adoption of the national Framework and is considering amendment of its existing program to fit with that goal.

3.4 Tasmania

There are currently no operators certified against the Framework in Tasmania.

Issued under the *Public Health Act 1997*, the *Tasmanian Drinking Water Quality Guidelines 2015* establish best practice frameworks for controlling authorities to effectively manage drinking water quality. These are legally enforceable requirements.

There is a requirement within the Guidelines to provide relevant staff training where a compliance plan has been requested (as a result of a non-compliance) but it is not specified in other circumstances.

3.5 South Australia

There is currently one operator certified against the Framework in South Australia with a number more operators currently completing the training with the intention that they will be Certified this year.

Drinking water in South Australia is managed under the *Safe Drinking Water Act 2011* and *Safe Drinking Water Regulations 2012*.

The Act states the following in relation to the competency of those operating drinking water systems;

- 53 (2) (d) require that prescribed classes of systems or processes associated with the supply of drinking water must be managed, maintained or undertaken by persons with prescribed qualifications or experience, or who satisfy other competency requirements.

3.6 Western Australia

There are currently no operators certified against the Framework in Western Australia.

The *Water Services Act 2012* regulates water services in Western Australia. The legislation does not refer to skills, qualifications or training for operators.

3.7 Northern Territory

There are currently no operators certified against the Framework in the Northern Territory.

Drinking water is regulated under the *Water Supply and Sewerage Services Act 2000*. There are no stipulated requirements for operator training or skills.

3.8 Australian Capital Territory

There are currently no operators certified against the Framework in the ACT although it is understood that ICON Water (the sole supplier in the Territory) is currently completing the training for their operators with the intention that they will all be Certified.

The ACT *Public Health (Drinking Water) Code of Practice (2007)* provides the framework for water quality management relating to the supply of drinking water under a Drinking Water Utility Licence in the ACT. The Code does not provide any requirements related to this training or the qualifications of operators.

4. Is there a problem that needs to be addressed?

The secure and safe supply of drinking water is fundamental to public health, and sufficiently skilled and trained operators are essential to ensuring a safe drinking water supply. Operators therefore perform a crucial role in protecting public health.

> *"On a day-to-day basis, it is the water treatment operator who carries the responsibility for ensuring that raw water is treated to the required standard, that incidents that may compromise quality are detected and addressed, and that identified risks are adequately managed. The actions taken, or not taken, by a water treatment operator can have a direct impact on the health and wellbeing of the communities for which they undertake water treatment services" (excerpt from the foreword to the Victorian Framework Guidelines, 2010)*

As noted in the preceding section, there is currently no direct mandatory requirement for an operator in Australia to demonstrate they are competent to perform their job or to hold a formal qualification. The WIST believes that this is a failure of regulators nationally to address community expectations and adequately keep up with changes in drinking water technologies and their own regulatory standards.

While water authorities take their responsibilities seriously, and there is a high uptake of the training available under the National Water Training Package, the training undertaken does not always meet the specific requirements for the operation of the water treatment plant where the trained operator ultimately works.

The results of the Queensland Certification Pilot, the Victorian Certification Scheme and the NSW pilot all demonstrate that most operators have approximately six 'gap' units of competency that they require training in before they comply with Certification requirements under the national Framework. This presents an issue where operators have been trained to Certificate III level but are operating water treatment plants without the process specific training that is relevant to that particular plant.

Further research, as part of the Queensland Certification Pilot Program (2014), estimated that approximately 20% of Operators in Queensland were unqualified at that time – noting that this was a self-assessment process and the number is likely to be conservative, with potential confusion around other trade qualifications. The situation for other states and territories is unclear as there is no data available.

Essentially, while a large proportion of Operators in Australia likely do have some form of formal competency, the lack of requirements regarding ongoing skills and knowledge maintenance, or the need to re-skill for new or changed technology, means that knowledge becomes outdated or 'forgotten' and complacency becomes a risk. There are a number of significant industry training endeavours, but a systematic and structured approach to address the needs nationally is essential.

Inadequate operator training and the absence of ongoing skills development can present a risk to the safe supply of drinking water. Some of the best resources to better understand drinking water risks (as a result of poor operator training) through real case studies are Steve and Elizabeth Hrudey's books. The most recent, published in 2014, *Ensuring Safe Drinking Water: Learning from Frontline Experience with Contamination,* outlines a number of case studies in drinking water quality incidents in developed countries.

The conditions that preceded most of the case studies involving human fatalities, including Milwaulkee (Wisconsin, USA) and Walkerton (Canada), are replicated throughout many Australian communities, and human error is in almost every case a major factor. The Walkerton case, is perhaps the best documented international drinking water incident.

Case Study – Walkerton Drinking Water Incident

Walkerton is a small regional community in Canada of approximately 5,000 people that experienced a water quality incident in May 2000. The incident led to seven deaths and 2,500 illnesses (including long term serious illnesses). In summary;

- A large rainfall event resulted in contamination of a shallow groundwater supply with *E. coli* O157:H7 and *Campylobacter*. The source of the contamination was demonstrated to be cattle manure.
- Installation of a shallow bore occurred without appropriate approvals.
- Operators had become accustomed to running the system in the manner they had observed over many years of employment, including taking samples where convenient, rather than where specified, mislabelling samples, and entering values for the monitoring of chlorine residual which were not actually measured. The Operators involved were both "Certified"; however, they had achieved this status through "grandfathering" (i.e. they were not required to demonstrate competency through further training or testing)
- Chlorine residual proved to be an essential real-time indicator of water contamination by revealing when raw water carried a high chlorine demand. Chlorine residual monitoring is not always present.
- The foreman was complacent about chlorination, believing it adversely affected water taste. When the incident ballooned beyond control, complacency led to cover-ups, increasing the severity of impacts. Compulsory reporting and regular site inspections were not enough to prevent the event.

The characteristics outlined in the Walkerton case study clearly demonstrate the potential for operator error and source water contamination risk also exists in Australia. While the adoption of the Framework would not remove these risks, "grandfathering" is not an

accepted option, and it is clear that a program of continuous professional development will greatly assist in the mitigation of risks.

The case studies and examples of waterborne outbreaks in affluent countries only represent a small portion of actual outbreaks where records and reports are available.

5. What range of policy options could be considered?

There are a number of policy options that could be considered by state and federal governments. Mandating Certification is certainly not the only option, and other initiatives may be more viable in the current political climate. In examining regulatory options, the original Steering Committee for the Queensland Certification Pilot considered Figure 1, developed to facilitate the same discussion in Victoria some years ago. The concept of "co-regulation" through a partnership approach was universally supported.

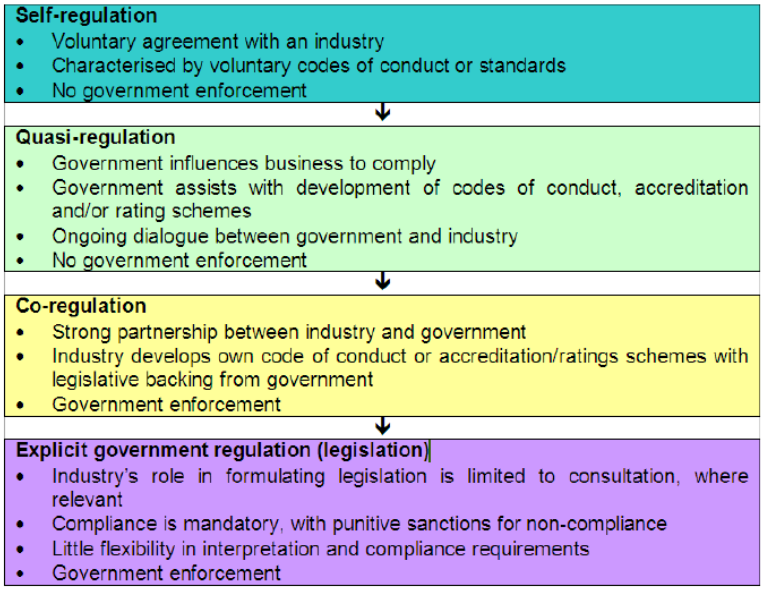

Figure 4 Regulatory Models

The following section provides an outline of potential options, ranging from mandated regulatory approaches, to co-regulation and incentives for uptake. A number of case studies are provided to outline how each approach has been successfully implemented internationally.

5.1 Legislation

Each Australian state or territory currently has a legislative framework for the management of drinking water supply and quality. Some of these legislative instruments allude to qualifications and skills of water operators/water authorities, but none include specific mandated training or Certification requirements.

Mechanisms for mandating Certification therefore already exist within state/territory legislation related to public drinking water supplies in many, but not all, instances.

Case Study – Canada

Much like Australia, the governance of drinking water in Canada falls under provincial/territorial jurisdictions. Each province and territory is responsible for developing and enforcing legislation related to public drinking water supplies.

Health Canada's Water Quality and Health Bureau develops the Guidelines for Canadian Drinking Water Quality in partnership with the provinces and territories.

Each province or territory is responsible for developing its own requirements for operator training and certification. Some states have implemented voluntary certification programs, whilst others have mandated operator certification.

Certified Operators are required in the following provinces and territories, as per the local regulations:

- Alberta Potable Water Regulations
- British Columbia Safe Drinking Water Regulations
- Nova Scotia Water and Wastewater Facility Regulations
- Ontario Water Works and Sewage Works Regulations
- Saskatchewan Water Pollution Control and Waterworks Regulations

These provinces and territories are also members of the Association of Boards of Certification (ABC). There are certification programs in all Canadian provinces, except Quebec. Reciprocity agreements provide for the movement of operators between jurisdictions, with varying Certification requirements.

5.2 Co-regulation options

Co-regulation can provide an arrangement where the industry develops and administers its own Certification Framework and procedures, but government provides legislative backing to enable the Framework to be enforced.

Case Study – British Columbia (Canada)

Under the Drinking Water Protection Act operators of water systems serving more than 500 individuals must be certified through the Environmental Operators Certification Program.

The Environmental Operators Certification Program (EOCP) is incorporated as a not-for profit society under the Societies Act of British Columbia and is responsible for certifying water and wastewater operators in British Columbia and the Yukon. There are no other approved Certifying Bodies and the Environmental Operators Certification Program Society is referenced in the Regulations.

The EOCP is directed by a Board elected by the members from candidates. The EOCP effectively operates on the fees charged for administering the Certification Program such as; examination fees, annual association fees, facility classification fees etc.

An industry-driven body could be established to own the Framework and the Certification process, including compliance and dispute resolution. Currently, the WIST informally performs the ownership and Framework management role, including the appointment of a Certifying Body and a dispute resolution process (through an Appeals Policy).

A separate Certifying Body would also be appointed. At present, WIOA has been appointed as the Certifying body, and has been performing this role for both the Victorian and national voluntary Certification programs. There is therefore opportunity to more formally establish this model, with regulatory backing.

Co-regulation of Certification may provide a number of advantages, such as;

- an industry-driven model that uses industry knowledge and expertise
- greater flexibility and adaptability
- reduced administrative burden for regulators.

A nationally-applied co-regulation option would require some agreement and cooperation between the states and territories on the establishment of the Owner and Certifying Body roles.

5.3 Quasi Regulation/Incentivise uptake of Certification

Quasi-regulation would provide an opportunity for the government to influence drinking water suppliers to comply with Certification, in the absence of explicit government regulation.

There are a number of non-regulatory options to encourage drinking water suppliers to adopt Certification for their operators. Certain strategic incentives may encourage drinking water suppliers that already see the benefit in Certification to implement it in practice and may provide the impetus for other drinking water suppliers to investigate Certification and the benefits to their organisations.

Options for incentivising uptake include the following;

- Grant/funding eligibility conditions that stipulate a requirement for Certified operators. The US has implemented this approach at the federal level for public drinking water systems in Indian country (refer to Case Study example).
- Less stringent auditing requirements for drinking water suppliers that demonstrate compliance with the Certification Framework (this is essentially the model that is applied in Victoria).
- Formally recognise the Certification Framework in the Australian Drinking Water Guidelines (ADWG) as best practice for the management of operator training (the National Health and Medical Research Centre (NHMRC), the current owner of the Australian Drinking Water Guidelines, is the most relevant potential formal owner for the Certification Framework).
- Other non-financial incentives, including the reduction of statutory reporting burden.

Case Study – US

The federal Environmental Protection Agency established the National Tribal Drinking Water Operator Certification Program in 2010 to provide certification opportunities for personnel operating public drinking water systems in Indian country.

The Program offers Very Small Water System (VSWS) and Operator In Training (OIT) options, as well as Levels 1-4 Water Treatment and Water Distribution certifications. Water systems with a groundwater supply and only (non-gaseous) chlorination are considered just a distribution system, and no Treatment Certification is needed (EPA, n.d).

The Program offers certification at no cost to water system personnel.

The 2013 *EPA Drinking Water Infrastructure Grants Tribal Set-Aside Program Revised Guidelines* specifies that any system receiving Drinking Water Infrastructure Grants Tribal Set-Aside (DWIG TSA) funds must be operated by certified operators.

6. What could Government action achieve?

Voluntary Certification exists now and uptake has been relatively slow. WIOA, as the current Certifying Body, and organisations like ***qldwater,*** have attempted to establish agreements with state regulators which at least recognise the process and provide some assurance to water authorities that Certification for Operators who undertake the program on a voluntary basis is valid for the period of Certification, in the event it is mandated by regulation in future.

In time, there will be more instances of voluntary adoption; however, the potential of the program will likely be limited to service providers with the capacity and resources which are not typically the ones at most significant risk. In its *National Certification Framework Background and Options Paper* the National Water Commission (n.d., p.5) stated national scale adoption of the Framework would be unlikely if a voluntary approach to Certification was implemented "…undermining its capacity to reduce risk to public health."

A regulated, co-regulated or incentivised approach would be extremely likely to lead to public health benefits, but these benefits would be difficult to measure. More formal implementation would also help to lead a demand-driven training supply market, improving the quality of learning outcomes and better supporting the development of a skilled workforce. Lessons from the introduction of a voluntary framework in Victoria for employers point to clear benefits for organisational capacity. Other key benefits to be gained include;

- Greater participation with the training supply market to develop a broader range of assessment options (better translation of training to on-the-job outcomes);
- National collaboration, leading to, amongst other things, more transferable skills;
- For privately owned service providers it provides an important measure of the value provided to clients, as well as improving the capability and professionalism of operational teams;
- Positive team cultural experiences leading to greater participation in organisational planning;
- Improved career pathways for staff;
- Opportunities to celebrate the technical expertise of staff.

In addition to public health benefits, there are clear cost benefits, but productivity and business improvement are similarly difficult to measure.

The benefits of Certification cannot be fully achieved where they are needed the most without some form of government or regulatory intervention.

7. Options for a Phased Implementation Approach

There are a number of options available in order to target implementation of Certification to areas where it is needed most and will be of most value to public health goals.

Options for phasing in Certification include;

- Requiring drinking water suppliers to complete a workforce plan/training gap analysis to identify current compliance with the principles of the Framework. This would enable Government to thoroughly investigate options for mandating Certification over a period of time, but, in the meantime, ensure that drinking water suppliers were preparing for the impending requirement for Certification and assessing the current skills and qualifications of their workforce.
- Prioritisation of implementation based on risk; for example, taking into consideration raw water quality, population size, past performance in meeting water quality standards etc. This approach would attempt to target drinking water suppliers that are at most risk by not having suitably trained and qualified staff.

- Including operator Certification as a requirement in any approvals for new or upgraded water treatment plant licenses. The down side of this approach is that it would potentially not target the systems that are at the highest risk.
- An approach in line with the Victorian model whereby only a "responsible operator" at each treatment plant/system is required to be Certified in the first instance, creating champions for the program within each water authority.

They key considerations in any phased approach should be ensuring that the systems that are at the highest risk are targeted first and that initial 'wins' can be made and shared through successful implementation.

8. Additional Implementation considerations

There are a number of key considerations in implementing the Certification Framework that need to be discussed and agreed upon prior to formal implementation; the section below summarises some of these considerations.

8.1 Resolution of Framework ownership

The WIST is the current owner of the Framework; however, this is not ideal (particularly as the WIST is not a legal entity) and a more suitable long-term owner of the Framework should be sought. Approaches have been made to various federal bodies without success. Should any of the proposed regulatory (or quasi-regulatory) options be implemented, a formally appointed long-term owner of the Framework would need to be identified.

8.2 Linkages to the National Water Training Package

The competency requirements in the Certification Framework are linked to the National Water Training Package (NWP). The NWP is currently maintained by a Skills Service Organisation, Australian Industry Standards (AIS), with advice provided by an Industry Reference Committee. AIS is responsible for administrative functions relating to the maintenance of the package. Any changes to qualifications or units of competency in the NWP will need to be reviewed in association with requirements of the Certification Framework.

8.3 Support for regional and remote drinking water suppliers

Regional and remote drinking water suppliers are those that would potentially benefit most from implementation of Certification, but will also likely require the most support. Many states have funding arrangements to support operators to undertake formal training; however, there are other indirect costs such as the cost to back-fill operators whilst they attend training activities. Further, the only viable mechanism to ensure quality onsite training is provided to operators in regional locations is to ensure minimum numbers for training are met; in Queensland and NSW this can often only be achieved through a coordinated effort among a collection of councils. A "Framework Coordinator" role has been recognised in the Certification Framework for coordinating these activities. In Queensland, ***qldwater*** takes on this role on behalf of members, and members of its Water Skills Partnership program.

8.4 Grandfathering for existing workers

The Walkerton incident clearly outlines a case against grandfathering clauses that exclude existing workers from having to comply with the Certification Framework. The GSA Report on the final Framework (2012) stated that the majority of industry stakeholders did not support a grandfathering clause in the Certification Framework. The Walkerton incident was referenced and the overall feedback was that grandfathering would not sufficiently address the intention of the Framework in reducing the risks to public health, as there would still be inadequately trained operators.

Whilst a phased implementation approach is supported, and there is an opportunity for the application of a 'responsible operator' methodology to the Framework, existing workers should be required to comply with the minimum requirements of the Framework. This, therefore, presents issues with ensuring that the Framework requirements are promoted in a manner that does not undervalue the contributions of existing workers. Some operators may have been successfully and effectively operating water treatment plants for many years, but, without formal training, or with training that cannot be deemed "current" enough to meet Certification requirements. They will need to do additional training to adequately manage potential risks.

8.5 Quality of training

The quality of the training provided for NWP units of competence remains an ongoing and core issue in relation to the ultimate competency of operators. Whilst the Certification Framework does not attempt to directly address the level or quality of training provided by Registered Training Organisations (RTOs), it does provide a more prescriptive process to ensure that operators achieve the units of competency that are directly related to their on-the-job requirements. This goes some way to ensuring that training provided is operator-specific, but does not address quality concerns with the training delivered by some providers.

There are existing quality assurance requirements that RTOs must meet according to the *Standards for Registered Training Organisations (RTOs) 2015*. There are also state/territory based requirements for RTOs that deliver government-funded training. There is, however, a larger role for industry to play in influencing RTO capability in relation to high quality practical training, and this can only be effectively achieved through a coordinated industry-wide effort.

9. Concluding position

The water industry has demonstrated strong ongoing support for the implementation of Certification through a mandatory approach. The original stakeholder feedback during the consultation period for the Framework was largely in favour of a mandatory approach, and of the minority that supported a voluntary approach, it was suggested that certified status would be valued on its own, and that drinking water suppliers would voluntarily adopt the framework in an effort to demonstrate to regulators and communities that their workforce is appropriately skilled (GSA, 2012). Yet, in the more than four years since the national Framework was introduced, just over 30 operators nationally have been put forward and achieved Certified status across the country, with many states/territories failing to implement

the Framework at all. It can also be argued that those that have implemented Certification are not always those who service communities with the greatest drinking water risks.

The Water Industry Skills Taskforce is committed to the ongoing promotion of the Certification Framework as a viable and essential element in the management of both risk and drinking water quality across Australia. The WIST members believe that implementation of the Framework is crucial to ensuring a robust approach to operator training and ongoing skills development.

Whilst a co-regulation approach is the WIST's preferred approach to Certification, a suitably incentivised quasi-regulation option could provide similarly beneficial outcomes. Such an approach would be unlikely to require a detailed cost benefit analysis or regulatory impact statement as would other potential regulatory approaches.

The WIST urges the regulators in each state/territory to thoroughly consider options for incentivising the uptake of the Certification Framework for Operators of Drinking Water Systems as an important step forward for Australia, as it recognises the important role that drinking water operators play in protecting the public health of the communities that they serve.

References

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Environmental Protection Agency. 2016. "Drinking Water System Operator Training and Certification in Region 8". Accessed online https://www.epa.gov/region8-waterops/drinking-water-system-operator-training-and-certification-region-8

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Government Skills Australia. 2012. "National Certification Framework Final Report March 2012". Accessed online http://www.awa.asn.au/documents/National_Water_Certification_Framework_Final_Report.pdf

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Samuel, G. 2001. "Training and Accreditation of Water Supply Professionals". Prepared for: The Walkerton Inquiry, Part 2. Prepared on behalf of: Ontario Water Works Association (OWWA) Ontario Municipal Water Association (OMWA). Accessed online http://www.archives.gov.on.ca/en/e_records/walkerton/part2info/partieswithstanding/pdf/OWWA10.pdf

Other useful links

The following sites provide further information on Certification and its contribution to reducing drinking water risks.

Environmental Protection Agency.2016. "Drinking Water Action Plan". https://www.epa.gov/sites/production/files/2016-11/documents/508.final_.usepa_.drinking.water_.action.plan_11.30.16.v0.pdf

Human Rights Watch. 2016. "Make it Safe: Canada's Obligation to End the First Nations Water Crisis". https://www.hrw.org/report/2016/06/07/make-it-safe/canadas-obligation-end-first-nations-water-crisis

International Indigenous Policy Journal. 2012. "Water and Indigenous Peoples: Canada's Paradox". http://ir.lib.uwo.ca/cgi/viewcontent.cgi?article=1093&context=iipj

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