

The Value of Operator Competency Project



The Value of Operator Competency project was a WaterRA member-funded initiative to articulate the value and benefits of an appropriately trained and competent frontline operator workforce. The ability of a frontline operator to capably and competently manage water quality safety risks is extremely important to public health and safety, and environmental outcomes. A frontline operator workforce without the right level of knowledge, skill, and experience introduces system vulnerability and risk of service delivery failure, due to human error. Hence a shortfall in operator competency compromises the ability of an organisation to successfully meet customer and community expectations.

Frontline operator competency and water quality safety

A study by Wu et al. (2009) demonstrated the significant role human error plays in water quality safety incidents. This study reviewed 62 Hrudehy and Hrudehy (2004) documented international water quality safety incidents and reported that 78% of the errors that occurred were human-related. A lack of training and poor technical competency are key vulnerabilities within an organisation's risk management system, waiting for the right circumstances to present and test frontline operator response and performance under pressure. Many of the documented water quality safety incidents described by Wu and coworkers, provide examples of when competency is tested and found to be lacking. In these examples human errors were demonstrated to compromise the management of the water quality safety risks. Examples of overseas incidents where this has been the case are Walkerton (Canada), North Battleford (Canada), Flint (USA), and Havelock North (New Zealand).



Figure 1: Competency provision link to community impact.

Quick facts

- **Operational culture** – the values, attitudes, beliefs, and behaviour that exists within an operational team.
- **Regulation and compliance understanding** – knowing the water quality regulatory rules that apply to an operational setting and the impacts to public health or the environment from failing to comply with regulatory requirements.
- **Asset capability and operational performance** – knowledge, skills, and experience required to ensure effective and optimal asset operation.
- **Know-your-system risk-based thinking** – knowledge, skills, and experience required to analyse the water supply system and to critically assess the available information, to identify potential issues.
- **Operational response and emergency management** – the actions initiated in response to a deviation from “normal operational conditions” and the effective management of an escalating situation with the potential to cause public health and safety or environmental harm.

Frontline operator competency & five operational principles

Frontline operators require a diverse set of competencies to effectively manage water quality safety risks. The five operational principles listed under ‘quick facts’ (above) can be used to structure frontline operator learning and development programs. Providing learning opportunities and initiatives across the five operational principles offers frontline operators the opportunity to develop a diverse set of knowledge, skills, and experience applicable to the water quality risks managed.

The operational principles speak to an organisation's capability to achieve business risk management objectives across financial, service delivery, reputation, compliance, and environmental risk. The Value of Operator Competency project literature review demonstrated that a lack of competency across these operational principles, may affect organisational reliability, with a ‘flow on’ risk to customers and to a community's health and wellbeing, economic prosperity and environment. This relationship between technical competency and business performance is illustrated in Figure 2.

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Figure 2



A frontline operator workforce with a diverse set of competencies across each of the five operating principles is one pillar of strength in an organisation’s risk management approach. Leadership is central to this model as frontline operator competency is influenced by leadership from all levels of the water industry— regulators, organisational management, industry peak bodies and other stakeholders, such as customers.

What can the Australian water industry do to foster operator competency?

The Water Industry Operator Certification Framework (WIOCF) provides the water industry with a structure to develop, support and grow frontline operator competency. The WIOCF formal education and the on-the-job workplace experience criteria develop the knowledge and skills a frontline operator requires to capably manage a water supply system. The continual professional development (CPD) requirements of the framework supports the retention and further growth of competency. The structure of the WIOCF CPD encourages competency diversity through a point accrual system for each CPD initiative. To meet CPD criteria a certified operator must be provided with a variety of learning and development opportunities. An organisation can use the five operating principles described above to structure a diverse CPD program for frontline operators.

The WIOCF provides the water industry with a credential to demonstrate competency to fulfill operational roles. The currently voluntary WIOCF credential for operators in the water industry bears significant similarities to the mandated credentials

recognised by other industries, such as aviation, nursing electrical and engineering. Employment within these industries relies upon individuals obtaining and maintaining the mandatory credential to demonstrate competency to perform duties. For these industries, the credentialing system is a nationally consistent approach to employee training and competency. Providing industry regulators, organisations, customers and communities with the assurance that services are delivered by a competent and proficient workforce.

Through adopting the WIOCF the Australian water industry could also demonstrate a nationally consistent approach to frontline operator training and competency. In doing so, it would set a benchmark to ensure all frontline operators are appropriately trained and proficient for the duties undertaken. The value and benefits derived include:

- a benchmark to measure the adequacy of frontline operator training and competency provision
- a foundation to inform and build technical capacity, capability, and consistency across the industry
- assurance the workforce is prepared to deliver and maintain service standards
- fostering a high level of customer and community trust and confidence
- facilitating portability of skills within the industry
- increased staff confidence, engagement, and innovation
- an industry career pathway from entry-level through to career progression
- a water industry-specific credential to demonstrate workforce competency to perform duties.

These are all key aspects relevant to securing a robust and resilient frontline operator workforce that is well equipped and prepared to deliver safe reliable water service outcomes now and for the future.

References

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