



WATER PLAN

2013 to 2018

**Supporting
Document E**

**Water Quality Obligations
and Initiatives**

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1.0 WATER QUALITY OBLIGATIONS AND INITIATIVES

Goulburn Valley Water is committed to ensuring that the water supplied to drinking water consumers meets health compliance requirements and community expectations. Water supplied should be “safe” for consumption by being free from microbial or chemical contaminants that are a risk to human health. It is also expected that the water should be aesthetically acceptable by being low in colour and turbidity, as well as being palatable to the consumer.

Both the Goulburn and Murray River Catchments are unprotected, degraded and accommodate intensive irrigated and dry land farming enterprises. The nature of the degradation of these catchments poses significant risk to drinking water quality. Although there are controls in place to manage risks to water quality, hazards can be unpredictable and difficult to manage. Some hazards faced by Goulburn Valley Water include:

- Riparian grazing/ intensive agriculture;
- Potential chemical and fuel contamination;
- Recreational water use;
- Un-sewered small communities;
- Poor quality irrigation and stormwater drainage sources.

As a consequence a very high proportion of the raw water received by Goulburn Valley Water is high in colour and turbidity and at high risk of microbiological and chemical contamination. In addition, raw water quality is subject to significant variability, particularly following rainfall events. These risks and other issues lead to a requirement for robust treatment infrastructure that incur high operational and maintenance costs, including high chemical and energy usage and staffing.

Additionally, due to elevated solids loading, the backwash and sludge decant water volume can be relatively high, imposing an increased load on sewerage systems, generating a relatively high non-revenue water component. Where possible, Goulburn Valley Water returns the resultant supernatant from these processes back to the head of the plant reducing loading on sewerage systems. However, this is not always achievable and can significantly increase the unit cost of production.

The complexity of treatment facilities requires a highly skilled, flexible and proactive workforce to continually optimise performance in order to produce consistently high quality water. This is highlighted in Table 1 which shows that the majority of Goulburn Valley Water treatment plants assessed against the Department of Health (DH) ‘Victorian Framework for Water Treatment Operator Competencies - Best Practice Guidelines 2010’ hold a level 3 risk classification requiring a minimum of Certificate 3 in Water Treatment. Expenditure associated with achieving and maintaining compliance against the Guidelines is detailed in section 1.2.5.

Given the remoteness of the facilities, most are unmanned, necessitating remote monitoring and SCADA systems. In order to ensure the integrity of these critical systems, a significant maintenance commitment is required. Details of the systems currently in operation at Goulburn Valley Water can be seen in Table 1.

TABLE 1: SUMMARY OF TREATMENT PROCESSES FOR EACH WATER SYSTEM

Water Treatment Plant (WTP)	Pre-treatment				Clarification				Filtration			Disinfection			Fluoridation	Plant Risk Classification
	Raw Water Detention	Oxidation / Aeration	Activated Carbon	Coagulation & Flocculation	Upflow Clarification	Dam Sedimentation	Adsorption Clarification	Dissolved Air Flotation	Rapid Media Filtration	Slow Sand Filtration	Membrane Filtration	Chlorination / Hypochlorite	Chloramination	Chlorine Dioxide		
Alexandra WTP	•			•				•	•			•				3
Barmah WTP			•	•	•				•			•				3
Bonnie Doon WTP	•			•				•	•			•				3
Broadford WTP	•			•					•			•				3
Cobram WTP			•	•				•	•			•				3
Colbinabbin WTP	•			•		•					•	•				2
Corop WTP*												•				N/A
Dookie WTP	•			•		•						•	•			2
Euroa WTP	•			•	•				•			•				3
Girgarre WTP	•										•	•				2
Goulburn Weir WTP*												•				N/A
Katamatite WTP	•			•		•						•	•			2
Katandra West WTP	•			•		•						•	•			3
Katunga WTP	•											•				2
Kilmore WTP	•			•				•	•			•				2
Kirwan's Bridge WTP*												•				N/A
Kyabram WTP	•			•				•	•			•			•	3
Longwood WTP	•			•	•				•			•				3
Mansfield WTP	•			•			•		•			•				3
Marysville WTP	•											•		•		2
Molesworth WTP*												•				N/A
Murchison WTP				•	•				•			•				3
Nagambie WTP		•	•	•								•	•			3
Nathalia WTP				•	•				•			•				3
Numurkah WTP				•	•				•			•				3
Picola WTP	•			•	•				•			•				3
Pyalong WTP	•									•		•				3
Rushworth WTP				•				•	•			•				3
Seymour WTP	•			•	•				•			•			•	3
Shepparton WTP				•	•			•	•			•			•	4
Stanhope WTP	•			•		•						•	•			2
Strathbogie WTP*												•				N/A
Tatura WTP	•			•				•	•			•				3
Tongala WTP	•			•	•				•			•			•	2
Upper Delatite WTP				•								•	•			2
Woods Point WTP*												•				N/A
Yea WTP				•	•				•			•				3

* Indicates Regulated Supply

In 2011, Goulburn Valley Water undertook a significant review of its Water Quality Risk Management Plan; an integral part of the Drinking Water Quality Management System (DWQMS). Initially implemented in 2005, the DWQMS is the primary system guiding the Corporation’s water quality investment and operational management regime and is based on the Australian Drinking Water Guidelines – Framework for the Management of Water Quality. The DWQMS is underpinned by a risk approach to water quality management and utilises continuous improvement principles to further develop and optimise water treatment processes to ensure the risk profile is as low as is reasonably practicable.

Over the last five years, a number of new water treatment facilities, major upgrades, and pipelines have been completed, significantly improving water quality and compliance with the *Safe Drinking Water Act*. In addition, the provision for fluoridation has been made at a number of towns and Master Plans have been completed to identify opportunities for improvement within Goulburn Valley Water systems. Details of these works are summarised in Table 2.

TABLE 2: SUMMARY OF MAJOR WORKS FOR EACH WATER SYSTEM

WTP	Major Works	Master Plans and Investigations
Alexandra	Pipeline constructed between Alexandra Thornton and Eildon & construction of new Water Treatment Plant	
Barmah	New 300kL Clear Water Storage	Process Optimisation Project
Bonnie Doon	Construction of new Water Treatment Plant (including 200kL CWS)	Process Optimisation Project
Broadford	Pipeline from Goulburn River to Broadford WTP	Master Plan Completed
Cobram	Construction of fluoridation plant.	
Colbinabbin	Construction of new Water Treatment Plant (including 200kL CWS)	
Dookie	Construction of new Water Treatment Plant (including 200kL CWS)	
Girgarre	Construction of new Water Treatment Plant (including 200kL CWS)	
Katamatite	Construction of new Water Treatment Plant (including 200kL CWS)	
Katandra West	Construction of new Water Treatment Plant (including 200kL CWS)	
Kilmore	New 500kL Clear Water Storage, Sludge management facility and Control building	Master Plan Completed
Kyabram	Construction of fluoridation plant.	
Longwood		Master Plan Completed

WTP	Major Works	Master Plans and Investigations
Mansfield	Construction of a new 355ML raw water storage Refurbishment of the raw water storage embankment	
Marysville		Investigation into replacement of current disinfection system with new Water Treatment Plant
Murchison		Investigation into filter performance
Nagambie		Master Plan Completed
Nathalia		Investigation into asset performance and capability
Numurkah	Construction of a new raw water storage and change of raw water source New 3ML clear water storage	Master plan for plant upgrade including type and location
Pyalong		20 year capability review and review of elevated TDS levels
Seymour	Construction of fluoridation plant	
Shepparton		Long term capability and capacity review
Stanhope	Construction of new Water Treatment Plant	
Tatura	New 3ML Clear Water Storage	Investigation into filter performance
Tongala	New filtration plant	Investigation into current fluoridation plant
Upper Delatite	New water treatment plant	

Goulburn Valley Water has a number of obligations relating to water quality. The key legislative drivers are the *Safe Drinking Water Act 2003* (SDWA) and the associated regulations, which are due for review in 2015. In addition several provisions of the *Food Act 1984*, the *Health (Fluoridation) Act 1973* and the *Fluoridation - Code of Practice (2009)*, include obligations for the Corporation.

In May 2011, DH released the Guidance Note No. 14 “Guidance to Water Corporations on the Department of Health’s Regulatory requirements with Regard to Water Plan 3”. The development of the Corporation’s Water Plan has been guided by this document along with legislation relating to drinking water quality. In particular Goulburn Valley Water notes the following expectations by DH:

- Compliance with Schedule 2 of the *Safe Drinking Water Regulations (2005)* is achieved;
- Water supplies with elevated levels of TDS should be addressed;

- All operators meet the minimum competency requirements detailed within the Victorian Framework for Water Treatment Operator Competencies – Best Practice Guidelines;
- All Critical Control Points should be alarmed and available on SCADA;
- Individual turbidimeters on all water treatment filters.

1.1 Business as Usual Expenditure

1.1.1 *Expenditure to Improve Health Related Compliance*

Section 17 of the Safe Drinking Water Act 2003 requires Goulburn Valley Water to comply with the quality standards specified for drinking water in any regulations established under the provisions of the legislation.

The majority of water supply systems managed by Goulburn Valley Water incorporate adequate processes and systems to comply with the standards and mitigate identified risks to water quality. Significant work was undertaken in Water Plan 2 to ensure continuing compliance with water quality standards, (Refer table 2: Summary of Major Works for Each Water System for further details) with the major focus being on systems at elevated risk. Notably, the construction of the Alexandra–Eildon pipeline has reduced the number of trichloroacetic acid exceedances within Thornton with 100% compliance since commissioning of the project.

Identification and quantification of risks is an integral and continuous process of the DWQMS with the aim of capturing required improvements. Consequently there is an ongoing risk improvement program, with a number of initiatives planned for Water Plan 3 (Refer section 1.1.5). DH has advised that the Safe Drinking Water Regulations are due for a review in 2015 and there is a desire to introduce additional water quality standards as part of this review. Initial guidance on the proposed changes has been detailed in Appendix 1 of the DH publication, “Guidance to Water Corporations on the Department of Health’s Regulatory requirements with Regard to Water Plan 3”.

At this stage initial investigations into the proposed changes have been made and further detail can be found in section 1.4.

1.1.2 *Disinfection Only Supplies*

Goulburn Valley Water operates two “disinfection only” drinking water supply systems, these are at Marysville/Buxton and Katunga. The DH has indicated that risks associated with disinfection only systems sourced from unprotected catchments, where water quality risks cannot be satisfactorily managed, should be addressed, preferably utilising a “multiple barrier approach” within the Water Plan 3 regulatory period.

The Katunga WTP is a disinfection only groundwater aquifer system. A risk assessment, from catchment to tap, has been completed and concluded that water quality risks are managed satisfactorily.

The Marysville/Buxton system sources raw water from the Steavenson River. The Steavenson River catchment is unprotected and subject to recreational access. During the 2009 bushfires the catchment was significantly impacted, leading to elevated raw water turbidity, organics and colour and significant variation in water quality compared to pre-bushfire conditions. As a result, a master plan was prepared in 2011 confirming that the existing treatment barriers are unable to satisfactorily address the water quality risks. The resulting recommendation was to improve the existing multiple barriers through the installation of a filtration system, new disinfection facility and treated water storage tank.

The related project has been included in the Water Plan.

1.1.3 Non-Potable (Regulated) Supplies

Section 25 of the Safe Drinking Water Act 2003 requires Goulburn Valley Water to take all reasonable steps to ensure that the intended recipients of the water are made aware of the nature of the water and the health risks that may arise from the use of the water.

At present Goulburn Valley Water manages six regulated (non-drinking) systems at Goulburn Weir (30 residents), Corop (70), Kirwan's Bridge (80), Molesworth (40), Strathbogie (60) and Woods Point (150) and supplies untreated water to approximately 129 customers under individual Water Supply Agreements.

The Corporation has confirmed in writing to DH that these supplies are not considered drinking water supplies within the definition of the *Safe Drinking Water Act 2003* and *Food Act 1984*. The six township supplies have been declared as Regulated under the *Safe Drinking Water Act 2003* and are covered within the Corporation's Drinking Water Quality Risk Management Plan and are auditable under the *Safe Drinking Water Act 2003*.

Goulburn Valley Water has established notification processes to inform existing and all new customers within these systems that the water supplied is not for drinking. This notification process is also revisited regularly to reinforce customer awareness of the non-drinking status of the supplies.

Under the DH expectations for Water Plan 3, the upgrade of a system from regulated to potable should not be undertaken without due consultation of the community. These communities demonstrated a strong acceptance of the regulated status during consultation in 2007.

Consequently *Goulburn Valley Water* has no plans in Water Plan 3 to upgrade the systems to drinking water status. However *Goulburn Valley Water* will continue to monitor community preferences and, subject to community support, revisit upgrade options in future.

1.1.4 *Catchment Management*

Addressing risks to water quality in the catchment represents the first barrier in *Goulburn Valley Water*'s multi-barrier approach to the provision of safe drinking water to our customers. *Goulburn Valley Water* does not have direct powers or responsibilities for catchment management activities. However, as part of *Goulburn Valley Water*'s Environmental Stewardship Framework, the Corporation is committed to enhancing understanding around catchment risks and collaborating with key stakeholders to strategically impact catchment management.

Planned activities for the Water Plan include:

- Proactive partnering through participation in stakeholder working groups including Goulburn-Murray Water, Goulburn Broken Catchment Management Authority, Councils, EPA, MDBA and DH to improve catchment health and water quality;
- Influence policy development to encourage effective management of diffuse source risks, such as onsite wastewater management systems, land management practices and riparian management;
- Introduction of land management plans at *Goulburn Valley Water*'s larger reservoirs;
- Review of catchment risk assessments to enhance understanding of pathogen risks within unprotected source waters.

1.1.5 *Actions to address risk management improvement plans*

Sections 1 and 7 of the Safe Drinking Water Act 2003 require Goulburn Valley Water to prepare, implement and review risk management plans relating to supply of drinking water and regulated water to the public.

The Australian Drinking Water Guidelines (ADWG) - Framework for Management of Drinking Water Quality developed by NHMRC and ARMCANZ (reviewed in 2011), sets best practice for water quality management and, in accordance with the *Safe Drinking Water Act 2003*, provides a basis for the ongoing management of water supply systems.

Goulburn Valley Water's Drinking Water Quality Management System, which incorporates the *Safe Drinking Water Act 2003* requirements for a Risk Management Plan, is based on the underlying principles of the ADWG Framework for Drinking Water Quality Management. The key components of this Framework include:

- Risk based management of water quality hazards;
- Continuous improvement of the system utilising lead indicators;
- Process control and monitoring response including the utilisation of Critical Control Point (CCP) principles;
- Integrated data acquisition, record maintenance and reporting systems;
- Employee development, training and skill development programs in line with the Victorian Framework for Water Treatment Operator Competencies - Best Practice Guidelines 2010.

As part of the ongoing implementation of the ADWG Framework, Goulburn Valley Water continues a significant effort in the assessment and management of water quality risks. The risk register and action plan is a living decision making and management tool that drives improvement initiatives.

Goulburn Valley Water maintains a proactive approach to water quality, holding regular liaison meetings between key internal departments to ensure any potential issues are addressed as part of the capital works or operational improvement programs. Additionally water quality risk assessments are reviewed regularly and there are triggers in place to ensure any changes in water quality or process will initiate a review of associated water quality risks.

A recent review of the risk assessments has identified a number of new initiatives to be implemented during the regulatory period to ensure ongoing compliance with the SDWA 2003, as shown in Table 3. An operational process optimisation project is also ongoing to complement the major water quality improvement projects.

**TABLE 3 –
SUMMARY OF PROPOSED WATER QUALITY INITIATIVES
TO BE IMPLEMENTED DURING THE REGULATORY PERIOD DIRECTLY ATTRIBUTABLE
TO THE SDWA 2003**

Site Name	Capital Works	Master Plans/ Investigations/ Business as usual
Corporate Wide		Catchment Crypto/Pathogen Risk assessment Investigation and Optimisation of Filter Ripening Periods (new obligation) Review of Supernatant return activities (new obligation) OFI's from the outcomes of the 2011 SDWA audit (potential new obligations) Provision for 3 x SDWA Audits Increased reporting of process targets to DH utilising WTA tools (new obligation) Taste and Odour reticulation trials Operator competency and resourcing program (new obligation)
Alexandra WTP		Potential for the provision of fluoridation. DH dependant
Bonnie Doon WTP		Optimisation of new plant Internal Master Plan review
Broadford WTP	Major capacity augmentation planned to commence 2018	Potential for the provision of fluoridation. DH dependant
Cobram WTP	Commissioning of fluoridation plant through construction of Murray-Goulburn Cooperative Pipeline	Provision for Master Plan review
Euroa WTP	Sludge/ Supernatant Management upgrade CWS augmentation	Potential for the provision of fluoridation. DH dependant Provision for Master Plan review
Kilmore WTP		Potential for the provision of fluoridation. DH dependant
Kirwan's Bridge WTP*	CWS Augmentation	
Kyabram WTP		Provision for Master Plan review
Longwood WTP		Investigation into Supernatant return/Sludge management
Mansfield WTP		Provision for Master Plan

Site Name	Capital Works	Master Plans/ Investigations/ Business as usual
Marysville WTP	Construction of new Water Treatment Plant	
Murchison WTP	Refurbishment of filtration system	Provision for Master Plan review
Nagambie WTP	Capacity augmentation and Installation of a new CWS. Potential clarifier and GAC pre-treatment system	Potential for the provision of fluoridation. DH dependant
Nathalia WTP	Replacement of existing filtration system Refurbishment of CWS and clarifier	
Numurkah WTP	Construction of new Water Treatment Plant	Potential for the provision of fluoridation. DH dependant
Picola WTP		Provision for Master Plan review
Pyalong WTP	CWS improvements	
Rushworth WTP	CWS augmentation	Provision for Master Plan review
Seymour WTP		Provision for Master Plan review
Shepparton WTP	WTP Capacity augmentation	
Tatura WTP	Refurbishment of filtration system. Tower Upgrade, WTP Capacity upgrade	Potential for the provision of fluoridation. DH dependant Provision for Master Plan review – in conjunction with fluoridation work
Tongala WTP	Replacement of existing fluoride plant	Existing clarifier capability assessment
Woods Point WTP*	CWS augmentation	
Yea WTP		Provision for Master Plan review

* Indicates Regulated Supply

Goulburn Valley Water has proactively committed to undertake two master plans per year focussing on water quality capability. An ongoing water quality review process will determine and regularly review the priority for master planning.

1.1.6 Audits

Section 10 of the Safe Drinking Water Act 2003 requires Goulburn Valley Water to undertake independent audit of the Risk Management Plan.

Goulburn Valley Water has made provision for the three audits indicated by DH for the regulatory period.

1.1.7 Administration Levy

Section 51 of the Safe Drinking Water Act 2003 requires each water supplier and water storage manager to pay a levy in respect of any period specified by the Minister on or by the date specified by the Minister to assist in defraying the costs of administering this Act.

Goulburn Valley Water has made provision for the payment of the administration levy throughout the regulatory period.

1.1.8 Operation of Fluoride Plants

The Health (Fluoridation) Act 1973 ('the Act') regulates the safe and effective addition of fluoride into drinking water supplies in Victoria. The Code of Practice for Fluoridation of Drinking Water Supplies 2009 specifies the requirements for the safe design and effective operation of a fluoridation plant.

The fluoridation code of practice states that all plant and equipment used for adding fluoride to a drinking water supply must operate in a safe, reliable and precise manner. The corporation must only use plant and equipment as specified in the plans and specification and as approved by the Department, and must ensure that this plant and equipment is maintained.

Goulburn Valley Water currently operates four fluoridation systems at Tongala, Shepparton, Kyabram and Seymour. All plants are operated within the guidelines of the fluoridation code of practice, with regular monitoring, maintenance and inspection of the plants to ensure continued compliance with the code. Fluoridation works have been constructed at the Cobram WTP, but are still to be commissioned, pending provision of works to maintain non-fluoridated supply to a major industrial customer of the system. At present Goulburn Valley Water, DH, RDV and the major customer are collaborating to resolve the preferred servicing arrangements.

There is an expectation from DH that within the regulatory period commencing 2013 all fluoridation plants will be assessed against the code of practice. From this, a works plan should be developed with a view to all fluoridation plants being compliant with the Code by the end of 2015.

In 2011 Goulburn Valley Water, completed an initial gap analysis against the Code of Practice identifying a need for upgrade of the Tongala WTP fluoridation system. This capital investment has been planned for completion in 2015.

Recent findings from audits undertaken on the Seymour and Kyabram fluoridation plants by DH, demonstrate that Goulburn Valley Water will be required to commit additional resources and budget towards the operation of these plants. These additional resources are required to ensure that the improvements identified during the audits, primarily as a result of tightening standards, are met during the Water Plan 3 period.

1.2 Water Plan 3 Requirements

1.2.1 Compliance with Water Quality Standards

The DH guidance note sets an expectation that recurring Schedule 2 WQ standard non-compliances will have been resolved by the end of the Water Plan 3 period.

At the time of the preparation of the Water Plan, Goulburn Valley Water has one undertaking in place with the DH. This undertaking is planned to be addressed prior to the commencement of the Water Plan 3 period.

1.2.2 Multiple Treatment Barriers

The DH has indicated that where required the implementation of multi-barrier treatment systems for all drinking water supplies should be addressed in Water Plan 3.

Table 4 summarises the multiple treatment barriers for each drinking water supply system that already addresses this expectation. During WP3 additional barriers are planned at Marysville, which will complete Goulburn Valley Water's long term strategy to filter all drinking water supplies sourcing water from open catchments.

TABLE 4: TREATMENT BARRIER SUMMARY

Water Treatment Plant	Pre-treatment including RW detention	Coagulation & Flocculation	Clarification	Filtration	Disinfection	Total Number of Barriers
Alexandra WTP	1	1	1	1	1	5
Barmah WTP	1	1	1	1	1	5
Bonnie Doon WTP	1	1	1	1	1	5
Cobram WTP	1	1	1	1	1	5
Euroa WTP	1	1	1	1	1	5
Kilmore WTP	1	1	1	1	1	5
Kyabram WTP	1	1	1	1	1	5
Longwood WTP	1	1	1	1	1	5
Mansfield WTP	1	1	1	1	1	5
Piccola WTP	1	1	1	1	1	5
Seymour WTP	1	1	1	1	1	5
Tatura WTP	1	1	1	1	1	5
Tongala WTP	1	1	1	1	1	5
Broadford WTP	1	1		1	1	4
Murchison WTP		1	1	1	1	4
Nagambie WTP	1	1		1	1	4
Nathalia WTP		1	1	1	1	4
Numurkah WTP		1	1	1	1	4
Rushworth WTP		1	1	1	1	4
Shepparton WTP		1	1	1	1	4
Yea WTP		1	1	1	1	4
Colbinabbin WTP	1	*	*	1	1	3
Dookie WTP	1	*	*	1	1	3
Katamatite WTP	1	*	*	1	1	3
Katandra West WTP	1	*	*	1	1	3
Girgarre WTP	1			1	1	3
Pyalong WTP	1			1	1	3
Stanhope WTP	1	*	*	1	1	3
Upper Delatite WTP		1		1	1	3
Marysville WTP	1				1	2
Katunga WTP	1				1	2

* This barrier can be applied if required

1.2.3 Addressing Elevated TDS

The DH Guidance Note suggests that where TDS levels regularly exceed 1200mg/L, remedial action should be taken during the regulatory period to reduce the concentrations of TDS in the water.

Goulburn Valley Water manages one system with elevated TDS levels. The Pyalong WTP sources water from Mollison's Creek which has elevated TDS during periods of drought. TDS typically ranges between 600mg/L to 1000mg/L, but has been marginally higher during the peak of the drought in 2007. In 2010 a Master Plan was prepared for the Pyalong System that considered TDS management needs. In view of the high cost of alternative treatment and source water, and that the TDS levels are typically below 1200 mg/L in most circumstances, further capital investment is not warranted. The preferred management regime is a selective diversion strategy, to source lower TDS water from Mollison's Creek and take advantage of the off-stream water storage at times of higher TDS concentration in the Creek. Consequently no provision has been made in the Water Plan for TDS improvement works.

1.2.4 Monitoring of Operational Performance

Section 23 of the Safe Drinking Water Act 2003 requires Goulburn Valley Water to make any results from a water quality monitoring program relating to drinking water available to the public within seven days after it is compiled.

The Corporation already makes water quality information available through a range of media and is compliant with this provision. Provision has been made in the Water Plan to continue to meet this business as usual activity.

In keeping with Goulburn Valley Water's open consultative approach, the Corporation will continue to explore mechanisms for communicating its water quality performance to customers in addition to the many other services provided to ensure that customers are informed of water quality issues.

1.2.5 Training of Operational Staff

In 2010 the DH issued the 'Victorian Framework for Water Treatment Operator Competencies – Best Practice Guidelines' and expect that by the end of the Water Plan 3 regulatory period, water treatment operators meet the minimum competency requirements. This obligation will result in additional costs for Goulburn Valley Water.

Table 5 summarises the number of water treatment facilities by risk rating level based on the Framework criteria.

TABLE 5: MINIMUM REQUIREMENTS TO OPERATE WATER TREATMENT FACILITIES

Plant Risk Classification	Minimum Qualifications	Experience	Number of GVW Facilities
Level 4	Certificate IV in Water Operations. Must be certified.	Minimum 2 years responsibility for a Level 3 facility	1
Level 3	Certificate III in Water Operations. Must be certified.	Minimum of 2 years responsibility for a Level 2 facility, or 2 years assisting in the operation of a Level 3 facility	20
Level 2	Certificate II in Water Operations	At least 9 months in a water treatment or water quality role.	10

Upon completion of a gap analysis of all Goulburn Valley Water operational staff against the ‘Victorian Framework for Water Treatment Operator Competencies – Best Practice Guidelines’ it is apparent that additional expenditure will be required in the following areas:

- Additional staff –The Framework stipulates an experience requirement which will require Goulburn Valley Water to have staff in a position to step into an operational role in the case of long term illness, resignation or retirement. To meet this requirement Goulburn Valley Water has allowed in the Water Plan for a number of trainees to be employed across the business.
- Additional training - despite there being 10 Level 2 facilities, the geographic location of facilities requires operators to service both Level 2 and Level 3 facilities. In addition the technologies vary at each facility. Therefore all operators must attain Certificate III as a minimum and more specifically in the technologies that they are expected to manage. This is an additional training burden that is compounded by the requirement for all operators to be in a position to operate all plants within an area when participating in a 24/7 standby roster.

It is estimated that each operator will be required to complete an additional 3 NWP units in the Water Plan 3 period;

- Additional standby costs – the requirement for the operation of water treatment plants to be undertaken by experienced and qualified staff means that all operators participating in a 24/7 standby roster must be considered to be competent in line with the Framework.

For Goulburn Valley Water the current practice of using O&M staff to attend plants while on standby will not meet the requirements of the Framework. This will require additional persons to be available for standby across the organisation;

- Certification Costs – The costs for certification and refresher training for the maintenance of certification will need to be allowed for throughout the Water Plan period and beyond;
- Additional salary cost for staff operating the Level 4 plant at Shepparton – these staff will require a Certificate IV which requires payment of a higher salary in the Enterprise Agreement.

Provision for these additional costs has been made in the Water Plan.

1.2.6 Catchment Management

The DH Guidance Note sets an expectation that water businesses will allow for expenditure to remediate lands, water storages or streams or to generally improve water quality from water supply catchments, provided such works are the responsibility of the business and not that of a separate agency, such as a catchment management authority, or can be directly linked to managing risk in compliance with Safe Drinking Water Act.

Goulburn Valley Water is not the responsible agency for the maintenance of water quality in any source waters and therefore has not made additional provision for any capital expenditure. The Corporation already contributes significant funding through the Environmental Levy, which addresses this aspect of water quality risk. In addition, Goulburn Valley Water maintains a collaborative and proactive relationship with the catchment management agencies and plans to continue this approach over the Water Plan 3 period and beyond.

1.3 Expenditure under Health (Fluoridation Act)

The DH Guidance Note indicates that further fluoridation of Victorian towns will most likely occur during WP3. Consultation with DH confirms that towns with populations greater than 2000 will most likely be required to be fluoridated by the end of 2018.

In Dec 2011 DH confirmed that while DH has not officially gained program funding for the next stage of the program yet, it is considered to be highly probable.

Goulburn Valley Water has been advised that both DH and ESC agree that corporations should include the required works in respective infrastructure programs with an aim of completing all works by the end of 2018. Taking this in to account provision has been made in the Water Plan having regard to the following:

- DH will fund the initial capital works component of the lifecycle;
- Additional operations, maintenance, asset replacement, upgrade and abandonment costs throughout the lifecycle will be met by Goulburn Valley Water;
- DH will coordinate all community engagement for the program;
- At present there is no set list regarding which towns will be required to be fluoridated by the DH, there is an indication these will be negotiated with individual corporations.

Taking into consideration the DH guidance on criteria for fluoridation of towns with populations greater than 2000, Goulburn Valley Water has identified 8 water treatment plants that are likely to be upgraded with fluoridation works as part of the program. These sites have been identified as Nagambie, Euroa, Broadford, Kilmore, Alexandra, Mansfield, Tatura and Numurkah. Fluoridation at these sites will also provide fluoridated water to Violet Town, Eildon, Thornton, Wandong and Waterford Park.

Although the fluoridation of these towns has not been confirmed at this stage by DH, Goulburn Valley Water has undertaken an initial investigation into the fluoridation at these sites and the expected capital and related lifecycle costs required for Water Plan 3. These are detailed in Table 6. In addition to the direct fluoridation works, **Goulburn Valley Water has advice from a major food processing customer that provision of fluoridated water is unacceptable for their manufacturing processes.** Provision has been made in the Water Plan costs to provide a separate non-fluoridated supply to this customer. Goulburn Valley Water expects that the capital costs associated with this work will be met by other parties.

**TABLE 6:
EXPECTED CAPITAL AND OPERATIONAL EXPENDITURE ASSOCIATED
WITH ADDITIONAL FLUORIDATION**

Site	Base Cost (\$,000)	Additional Costs (\$,000)	Total Capital Cost (\$,000)	Operational Costs (\$,000/Annum)	Comments regarding additional costs
Numurkah	620	150	770	31.82	Additional interfacing required with existing processes. Potential for some earth works and plant removal
Tatura	620	1380	2000	32.21	Provision for 2.4km of pipeline included in capital cost estimate. Additional pumping facilities and interfacing with the existing plant is required.
Broadford	620	-	620	30.30	N/A
Kilmore	620	-	620	32.56	There is potential that the space allocated to fluoride dosing is insufficient.
Euroa	620	200	820	31.51	Earthworks will be required for construction
Mansfield	620	-	620	30.46	N/A
Alexandra	620	100	720	30.81	Some earth works may be required
Nagambie	620	80	700	31.16	Some additional civil works may be required dependent upon location on the site
Total	4,960	1,910	6,870	251	

- Estimated capital costs based on indexed prices of the Kyabram, Seymour and Cobram fluoridation plants.
- Operational costs based on estimated annual costs throughout the infrastructure lifecycle.
- Consultancy costs associated with program formulation and general procurement and design criteria have not been included in the Water Plan.

1.4 Safe Drinking Water Act Future Changes

DH has indicated that while the Safe Drinking Water Act is unlikely to change within the Regulatory Period, the associated regulations will be reviewed in 2015.

The DH Guidance Note indicates potential changes to the regulations; however the full extent of this revision remains unknown. A number of the suggested changes have the potential to significantly increase operational costs. These changes relate to standards for filter performance and disinfection contact time and associated changes to reporting requirements.

In relation to the filtered water turbidity performance standards, Goulburn Valley Water also understands that DH has concerns with the alternative risk control of ultraviolet irradiation. The Corporation proposes to consult further with DH in relation to clarifying this view.

Goulburn Valley Water understands that the cost of regulation will be considered as part of the related Regulatory Impact Statement of the review process. However the Corporation has a concern that the RIS process only considers the cost directly imposed by the regulatory change and not the costs that will be incurred to produce a “fit for purpose” product. Consequently the RIS process does not fully take into account the cost/risk trade-off of the new standards, but rather relies on the “best practice” recommendation of the ADWG. This clear distinction does not mean that Goulburn Valley Water will not incur these additional ‘fit for purpose’ expenses in order to comply with the new standards and ultimately Goulburn Valley Water’s customers will bear this cost.

The detailed nature of the standards is not known at the time of preparing the Water Plan and the implications will need to be evaluated on a specific system basis. Without further information, Goulburn Valley Water has made no provision for related new investigative, capital or operational costs in the Water Plan.