

Audit criteria for auditing Water Quality Management Systems

7 July 2023

1 What is the purpose of this fact sheet?

In this fact sheet, we have set out the audit criteria for auditing public water utilities' (PWUs) water quality management systems.

This fact sheet includes:

- a summary of actions from the Australian Drinking Water Guidelines (ADWG) that the PWUs' drinking water quality management systems must be consistent with, and the Australian Guidelines for Water Recycling (AGWR) that the PWUs' recycled water quality management systems must be consistent with, in accordance with the PWUs' operating licences
- our expectations for what the auditor should sight to be satisfied that the PWUs have maintained adequate water quality management systems/ have adequately implemented their water quality management systems.

This fact sheet complements the Public Water Utility Audit Guideline which explains IPART's PWU audit process, as well as our expectations for auditing and for reporting on the audits.

2 Instruction to auditor for auditing the adequacy and implementation of a PWU's drinking water quality management system (DWQMS)

The following tables list the elements 1-12 of the Australian Drinking Water Guidelines (ADWG) framework:

- Column 1 – lists the components of each element of the ADWG framework
- Column 2 – summarises actions for each component of the ADWG framework
- Column 3 – the PWU achieves adequacy if a system substantially meets these outcomes
- Column 4 – the PWU has implemented its system if it substantially meets these items.

ADWG Element 1 – commitment to drinking water quality management

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Drinking water policy	Formulate a drinking water quality policy, endorsed by senior executive, to be implemented throughout the organisation.	A drinking water policy has been endorsed by senior managers.	The drinking water policy is implemented within the organisation (see below).
	Ensure that the policy is visible and is communicated, understood and implemented by employees.	A process for communicating the policy has been identified and the drinking water policy is available to employees.	Key employees are aware of the policy as it relates to the implementation of their particular function. (Overlap with implementation of DWQMS, element 7)
Regulatory and formal requirements	Identify and document all relevant regulatory and formal requirements.	Identifies and documents the regulatory and formal obligations, and agencies responsible for the obligations that apply to the scheme.	
	Ensure that responsibilities are understood and communicated to employees.	Allocates responsibilities for managing regulatory obligations to the appropriate employees.	Communication to relevant staff is ongoing to ensure understanding is maintained and is current.
Engaging stakeholders	Review requirements periodically to reflect any changes.	Documents process for reviewing and updating the regulatory and formal obligations.	Registry of relevant regulation and other requirements is under regular review and in accordance with documented processes.
	Identify all stakeholders who could affect, or be affected by, decisions or activities of the drinking water supplier.	Lists all stakeholders who could affect, or be affected by, decisions or activities of the drinking water supplier. Lists the stakeholders where catchments and source waters are beyond the drinking water supplier's area of operation and their input is necessary for the development of the DWQMS consistent with the ADWG.	Identified stakeholders are engaged in the review of the DWQMS, where their input is necessary to produce outcomes that are consistent with the ADWG. The list is up to date and is under regular review in accordance with documented processes.
	Develop appropriate mechanisms and documentation for stakeholder commitment and involvement.	Identifies the mechanisms that will be employed to involve stakeholders and gain their commitment.	Mechanisms are effectively employed. The various agencies are involved in ongoing support of the PWU and, where appropriate, to coordinate their planning and management activities.
	Regularly update the list of relevant agencies.	A process for reviewing and updating the list of relevant agencies has been documented.	The list is up to date and is under regular review in accordance with documented processes.

ADWG Element 2 – assessment of the drinking water supply system

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Water supply system analysis	Assemble a team with appropriate knowledge and expertise.	Identifies the appropriate experts (or knowledge and expertise) that assessed the drinking water supply system.	The drinking water supply system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current. There is evidence to demonstrate that the team assembled to assess the drinking water supply system has the appropriate knowledge and expertise to undertake this work.
	Construct a flow diagram of the water supply system from catchment to consumer.	Summarises the results of the drinking water system analysis that has been undertaken by the appropriate team. Includes a comprehensive flow diagram of the water supply system consistent with section 3.2.1 of the ADWG. The diagram outlines all steps and processes, whether or not they are under control of the drinking water supplier, verified by field audits and checked by those with specific knowledge of the system.	The drinking water supply system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Assemble pertinent information and document key characteristics of the water supply system to be considered.	Each part of the water supply system from catchment to consumer is characterised with respect to water quality, the factors affecting it, and the integrity of the water supply system.	The drinking water supply system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Periodically review the water supply system analysis.	Documents a process to periodically review the water supply system analysis, including flow diagram. Analysis remains relevant. Flow diagrams reflect what is currently in operation from catchment to consumer.	The drinking water supply system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Assessment of water quality data	Assemble historical data from source waters, treatment plants and finished water supplied to consumers (over time and following specific events).	Assembles historical data regarding source water quality, as well as data from treatment plants and/or finished water supplied to consumers, identifying gaps and assessing reliability of the data (including exceedance data). Water quality data is periodically updated.	The drinking water supply system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	List and examine exceedances.	See above.	The drinking water supply system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Assess data using tools such as control charts and trends analysis to identify trends and potential problems.	Identifies a process for assessing data to identify trends and potential problems in the water supply system, including any exceedance data. Trends and potential problems resulting from data analysis are identified.	The drinking water supply system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
Hazard identification and risk assessment^a	Define the approach and methodology to be used for hazard identification and risk assessment.	Documents the approach and methodology to be used for hazard identification and risk assessment.	The drinking water supply system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Identify and document hazards, sources and hazardous events for each component of the water supply system.	Identifies and documents hazards, sources and hazardous events for each component of the water supply system.	The drinking water supply system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Estimate the level of risk for each identified hazard or hazardous event.	Identifies the estimated level of risk for each identified hazard or hazardous event.	The drinking water supply system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.

^a The assessment should be aligned with the Hazard Analysis Critical Control Point (HACCP) principles, as appropriate. The HACCP risk management framework was adopted for the ADWG (See section 2.1).

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
	Evaluate the major sources of uncertainty associated with each hazard and hazardous event and consider actions to reduce uncertainty.	Identifies the actions necessary to reduce uncertainty associated with each hazard and hazardous event.	The drinking water supply system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Determine significant risks and document priorities for risk management.	Identifies significant risks and documents priorities for risk management.	The drinking water supply system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Periodically review and update the hazard identification and risk assessment to incorporate any changes.	Documents a process to periodically review and update the hazard identification and risk assessment to incorporate any changes. The process must also identify triggers for review of hazard identification and risk assessment. Hazard identification and risk assessment have been reviewed and are current.	The drinking water supply system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.

ADWG Element 3 – preventive measures for drinking water quality management

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Preventive measures and multiple barriers	Identify existing preventive measures from catchment to consumer for each significant hazard or hazardous event and estimate the residual risk.	Identifies preventive measures from catchment to consumer for each significant hazard or hazardous event and estimates the residual risk.	Documented preventative measures and strategies are implemented.
	Evaluate alternative or additional preventive measures where improvement is required.	Defines acceptable risk level and evaluates alternative or additional preventive measures where improvement is required.	Preventive measures remain effective, and barriers are operational.
	Document the preventive measures and strategies into a system addressing each significant risk.	Documents the preventive measures and strategies addressing each significant risk in the scheme DWQMS risk register.	

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Critical control points	Assess preventive measures throughout the drinking water system to identify critical control points.	Identifies the critical control points. Selection of critical control points, mechanisms for control, critical limits and target criteria are supported by verifiable evidence.	SCADA ^b (or other controls system for the treatment plant) set points are consistent with the documented critical limits and target criteria.
	Establish mechanisms for operational control.	Identifies the mechanisms for operational control at critical control points	Critical control points are monitored, and critical limit exceedances are actioned in accordance with procedures.
	Document the critical control points, critical limits and target criteria.	Documents the critical control points, critical limits and target criteria. Changes to critical control points, critical limits and target criteria are documented and justified.	Critical control points are reassessed where preventive measures are not effective.

ADWG Element 4 – operational procedures and process control

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Operational procedures	Identify procedures required for processes and activities from catchment to consumer.	Clearly identifies all the operational procedures that are required to ensure processes and activities, including preventative measures identified in the risk register are formalised and actioned.	Control of processes is achieved through implementation of operational procedures, monitoring protocols and operational corrections in accordance with the DWQMS.
	Document all procedures and compile into an operations manual.	Documents identified operations procedures which form part of the DWQMS or AMS O&M manual.	Records are maintained to demonstrate implementation of operational procedures, monitoring protocols and operational corrections identified in the DWQMS.

^b Supervisory control and data acquisition (SCADA).

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Operational monitoring	Develop monitoring protocols for operational performance of the water supply system, including the selection of operational parameters and criteria, and the routine analysis of results.	Documents an operational monitoring protocol which specifies monitoring protocols for operational performance of the system, including the selection of operational parameters and criteria, and the routine analysis of results.	Operational monitoring is undertaken in accordance with protocol and appropriate records maintained.
	Document monitoring protocols into an operational monitoring plan.	See above.	
Corrective action	Establish and document procedures for corrective action to control excursions in operational parameters.	Establishes procedures for corrective action where operational parameters are not met. There are documented processes in place to ensure that equipment performs adequately and provides sufficient flexibility and process control.	Corrective action is undertaken in accordance with procedures when operational parameters are not met, and such corrective action is effective in ensuring that equipment performs adequately and provides sufficient flexibility and process control.
	Establish rapid communication systems to deal with unexpected events.	Documents rapid communication systems to deal with unexpected events,	Rapid communication systems responding to unexpected events were followed.
Equipment capability and maintenance	Ensure that equipment performs adequately and provides sufficient flexibility and process control.	Equipment and infrastructure in a water supply system needs to be adequately designed and of sufficient capacity (in terms of size, volume and detention times) to handle all flow rates (peak and otherwise), without limiting performance.	Monitoring and measuring equipment is demonstrated to be fit for purpose and calibrated at specified intervals.
	Establish a program for regular inspection and maintenance of all equipment, including monitoring equipment	Documents an asset management and maintenance program that specifies inspection and maintenance requirements for all equipment, including monitoring equipment. The program must detail schedules and timelines, responsibilities, and resource requirements. Identify where the program is a part of O&M manual or AMS.	Regular inspection and maintenance of all equipment, from source to point of use, ensures continuing process capability. <i>Implementation of AMS is tested separately.</i>
Materials and chemicals	Ensure that only approved materials and chemicals are used.	Documents specifications for approved materials and chemicals and procedures for evaluating chemicals, materials and suppliers and ensuring only approved materials and chemicals are used.	Materials used in the drinking water system are appropriate and meet specifications. Chemicals used in the drinking water system are appropriate and meet specifications.

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
	Establish documented procedures for evaluating chemicals, materials and suppliers.	See above.	See above.

ADWG Element 5 – verification of drinking water quality and environmental performance

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Drinking water quality monitoring	Determine the characteristics to be monitored in the distribution system and in water as supplied to the consumer.	Identifies the characteristics to be monitored in the water supply system and in water as supplied.	The consolidated sampling plan is followed, and monitoring data is verified to be representative and reliable. Procedures for sampling and testing are followed. Adequate resources are provided to ensure valid and reliable results of drinking water quality monitoring.
	Establish and document a sampling system for each characteristic, including the location and frequency of sampling.	Identifies the points at which monitoring will be undertaken.	Results of drinking water quality verification monitoring are used to evaluate conformity to criteria set in the DWQMS.
	Ensure monitoring data are representative and reliable	Identifies the frequency of monitoring in order to obtain meaningful information and statistical validity.	
Consumer satisfaction	Establish a consumer complaint and response program, including appropriate training of employees.	Documents program, or arrangements to monitor satisfaction of consumers and train the people responsible for the program.	Complaints and comments from consumers are evaluated.
Short-term evaluation of results	Establish procedures for the daily review of drinking water quality monitoring data and consumer satisfaction	Documents procedures for the short-term review of monitoring data. Procedures include rapid notification process for out of specification results.	Short-term evaluation of monitoring results and consumer feedback is used to verify that the quality of the drinking water conforms to established targets and meets consumer expectations.

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
	Develop reporting mechanisms internally and externally, where required	Documents reporting mechanism for the short-term evaluation of results internally and externally, as appropriate.	Corrective responses to non-conformances are implemented in accordance with documented procedures, or where PWU has deviated from documented procedure; reasons are documented the response has provided an equal or improved management of risk. Planned changes are controlled and consequences of unintended changes are reviewed. Action is taken to mitigate any adverse effects, as necessary
Corrective action	Establish and document procedures for corrective action in response to non-conformance or consumer feedback	Documents procedures for corrective action in response to non-conformances or feedback from users.	Corrective action is undertaken in accordance with procedures in response to non-conformances or feedback from users, and such corrective action is effective.
	Establish rapid communication systems to deal with unexpected events.	Documents rapid communication systems to deal with unexpected events.	Rapid communication systems responding to unexpected events are followed.

ADWG Element 6 – management of incidents and emergencies

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Communication	Define communication protocols with the involvement of relevant agencies and prepare a contact list of key people, agencies and businesses.	Identifies communications protocols. Includes an up-to-date contact list of key people, appropriate agencies, and stakeholders relevant to management of incidents and emergencies.	The contact list is kept up-to-date.
	Develop a public and media communications strategy.	Documents the public and media communications strategy.	
Incident and emergency response protocols	Define potential incidents and emergencies and document procedures and response plans with the involvement of relevant agencies.	Defines declared and notifiable incidents and emergencies.	Incident and emergency communications protocols are implemented as described in the DWQMS and follow the requirements of the PWU's Reporting Manual.

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
		Documents procedures and response plans, including rapid communications for incident notification, which reflect events identified in the risk register.	
	Train employees and regularly test emergency response plans.	Identifies training and testing of emergency response plans.	Employees are trained in incident and emergency response protocols and the plans are tested as appropriate.
	Investigate any incidents or emergencies and revise protocols as necessary.	Identifies the process for reviewing incidents or emergencies and identifying new risks, or new or improved preventative measures and making any necessary amendments to operational procedures or protocols.	Following any incident or emergency situation, an investigation is undertaken, and all appropriate staff debriefed. Protocols have been revised as necessary.

ADWG Element 7 – operator, contractor and end user awareness and training

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Employee awareness and involvement	Develop mechanisms and communication procedures to increase employees' awareness of and participation in drinking water quality management.	Identifies mechanisms and communication procedures to increase employee awareness of, and participation in managing drinking water quality. Documents process (arrangements) for ensuring that the PWU fulfils the requirement to ensure end user awareness.	Operators have a general understanding of the regulatory requirements regarding protection of public health. Operators and relevant contractors are aware of the drinking water policy and objectives of the DWQMS (overlap with element 1). Operators and relevant contractors understand drinking water quality risk management principles set out in the DWQMS, characteristics of the drinking water supply system and preventive strategies in place, consequences of system failures and how to apply and follow risk management principles.

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Employee training	Ensure that employees, including contractors, maintain the appropriate experience and qualifications	Ensure employees, including contractors, are suitably competent and adequately trained to carry out their duties.	Operators and relevant contractors must be aware of the arrangements that the PWU has in place to manage its obligations (e.g., communication with consumers) and that the PWU must use best endeavours to ensure those arrangements align with PWU's risk controls.
	Identify training needs and ensure resources are available to support training programs.	Documents a process for identifying any gaps in experience and training of operators and key contractors and identify ongoing training needs. Includes a schedule of training with timeframes and resources identified.	Employees and contractors are aware of their contribution to the effectiveness of implementing the DWQMS, including benefits of improved performance, and the implications of not conforming to the requirements set out in the DWQMS.
	Document training and maintain records of all employee training.	Documents processes and procedures for employee training and maintaining records of all employees training.	Identified training has been delivered or is appropriately scheduled to be delivered so that operators and contractors are competent. Records are maintained of all employee training, and processes and procedures for training are followed.

ADWG Element 8 – community involvement and awareness

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Community consultation	Assess requirements for effective community involvement.	Identifies requirements for consultation, communication with the community.	
	Develop a comprehensive strategy for community consultation.	Documents a consultation strategy consistent with requirements.	The PWU undertakes consultation with the community in accordance with its strategy.

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Communication	Develop an active two-way communication program to inform consumers and promote awareness of drinking water quality issues.	Documents communication arrangements with consumers.	Arrangements are in place and are actively employed.

ADWG Element 9 – validation, research and development

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Investigative studies and research monitoring	Establish programs to increase understanding of the water supply system.	Documents a program to increase understanding of the drinking water supply system and to improve management of the system.	Implements program as documented.
	Use information to improve management of the water supply system.	See above.	
Validation of processes	Validate processes and procedures to ensure that they are effective in controlling hazards.	Documents validation processes and procedures that ensure effective control of hazards. The processes and procedures must include evaluation of scientific and technical information to demonstrate, as a minimum, that the log removal value claimed for each process and critical control point is valid. Where scheme validation relies on the WaterVal validation of treatment technologies framework (complements the objectives of the ADWG), the specific section needs to be identified. ^c	Validation monitoring ^d is undertaken in accordance with documented processes and procedures to ensure hazards are effectively controlled.

^c See: <https://www.waterra.com.au/research/waterval/>

^d The purpose of validation monitoring is to obtain evidence that the processes will achieve the target pathogen log removals.

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
	Revalidate processes periodically or when variations in conditions occur.	Identifies variations that may affect performance of processes and would trigger revalidation and documents processes for revalidation.	Revalidation of processes is done when variations occur.
Design of equipment	Validate the selection and design of new equipment and infrastructure to ensure continuing reliability.	Documents validation processes and procedures that apply to the design of new equipment and infrastructure to ensure continuing reliability.	Validation of new equipment and infrastructure is undertaken in accordance with documented processes and procedures to ensure continuing reliability. <i>Implementation of AMS is tested separately.</i>

Note: Chapter 5 of the ADWG discusses microbial characteristics of drinking water and provides quantitative health-based targets for assessing microbial risk. It includes the water safety continuum for drinking water supplies introduced in 2022.

Note: Chapter 9.8 of the ADWG has additional guidance on validation of barrier performance.

ADWG Element 10 – documentation and reporting

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Management of documentation and records	Document information pertinent to all aspects of drinking water quality management.	Identifies information that is pertinent to aspects of drinking water quality management.	Appropriate documentation is kept to provide a foundation for maintaining effective drinking water quality management.
	Develop a document control system to ensure current versions are in use	Documents a document control system to ensure current versions of key documents are in use.	All documentation relevant to the implementation of the DWQMS are reviewed and current.
	Establish a records management system and ensure that employees are trained to fill out records.	Documents a records management system, and a process to ensure that employees are trained to complete records.	Records management system is maintained and records complete. Employees are trained to complete records.
	Periodically review documentation and revise as necessary.	Documents review timeframes.	Documents are reviewed and revised as necessary.
Reporting	Establish procedures for effective internal and external reporting.	Documents procedures for effective internal and external reporting.	Internal and external reporting is undertaken according to procedures.

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
	Produce an annual report to be made available to consumers, regulatory authorities, and stakeholders.	Identifies requirements for the production of an annual report aimed at consumers, regulatory authorities and stakeholders as appropriate.	Annual report is produced.

ADWG Element 11 – evaluation and audit

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Long-term evaluation of results	Collect and evaluate long-term data to assess performance and identify problems.	Documents processes and practices for the collection and evaluation of long-term data to assess performance and identifying problems.	Evaluation of long-term data is undertaken, and results reviewed. Problems from long-term data evaluation are identified and addressed.
	Document and report results.	Documents processes and practices for documenting and reporting results.	See above.
Audit of drinking water quality management	Establish processes for internal and external audits.	Documents process for effective implementation and maintenance of drinking water quality management internal and external audits. The frequency and schedule of audits, as well as the responsibilities, requirements, procedures, and reporting mechanisms, must be defined.	Internal audit undertaken at planned intervals.
	Document and communicate audit results.	Identify that audit results are to be communicated to relevant stakeholders. Audit results must be considered as a part of element 12 implementation.	Audit results are documented and communicated.

ADWG Element 12 – review and continuous improvement

Component	Summary of actions from the ADWG	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Review by senior managers	Senior managers review the effectiveness of the management system.	Identify the process for senior managers to review the effectiveness of the management system and evaluation of the need for change, including approving and monitoring implementation of audit programs and review of audit outcomes.	Effectiveness of the management system is reviewed by senior managers, and the need for change is evaluated. Decisions and actions by senior management are documented.
	Evaluate the need for change.	Processes and practices for periodic review of the DWQMS have been established.	Periodic reviews are undertaken as scheduled.
Drinking water quality management improvement plan	Develop a drinking water quality management improvement plan.	A drinking water quality management improvement plan has been developed to address identified needs. Results of analysis and evaluation, and output from the management review is considered to determine need for inclusion in improvement plan. The improvement plan is endorsed by senior executive and the DWQMS commits to implementing the plan. The improvement plan includes objectives, actions to be taken, accountability, timelines, and reporting.	The improvement plan is implemented according to the plan.
	Ensure that the plan is communicated and implemented, and that improvements are monitored for effectiveness.	A process for communicating, implementing and monitoring effectiveness of continual improvement actions has been established.	The improvement plan is communicated and implemented, and improvements are monitored for effectiveness.

3 Instruction to auditor for auditing the adequacy and implementation of a PWU's recycled water quality management system (RWQMS)

The following tables list the elements 1-12 of the Australian Guidelines for Water Recycling (AGWR) framework.

- Column 1 – lists the components of each element of the AGWR framework
- Column 2 – summarises actions for each component of the AGWR framework
- Column 3 – the PWU achieves adequacy if a system substantially meets these outcomes
- Column 4 – the PWU has implemented its system if it substantially meets these items.

AGWR Element 1 – commitment to responsible use and management of recycled water quality

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Responsible use of recycled water	Involve agencies (i.e. stakeholders) with responsibilities and expertise in protection of public and environmental health.	Identifies governmental agencies with responsibilities and expertise in protection of public health and the environment relevant to the scheme and specify their involvement in the development of relevant aspects of the RWQMS.	Identified stakeholders and government agencies are engaged in the development and review of the RWQMS, where their input is necessary to produce outcomes that are consistent with the AGWR.
	Ensure that design, management and regulation of recycled water schemes is undertaken by agencies and operators with sufficient expertise.	Identifies the expertise required for the design, management and regulation of the recycled water system.	Suitably qualified and experienced persons are engaged to design, manage and regulate the scheme.
Regulatory and formal requirements	Identify and document all relevant regulatory and formal requirements.	Identifies and documents the regulatory and formal obligations that apply to the scheme. Documents what the scope of the licence authorises.	
	Identify governance of recycled water schemes for individual agencies, designers, installers, operators, maintainers, owners and users of recycled water.	Identifies the agencies responsibilities for the regulatory obligations that apply to the scheme.	
	Ensure that responsibilities are understood and communicated to designers, installers, maintainers, operations employees, contractors and end users.	Allocates responsibilities for managing regulatory obligations to the appropriate employees.	Communication to relevant staff, contractors and end-users is ongoing to ensure understanding is maintained and is current.
	Review requirements periodically, to reflect any changes.	Documents process for reviewing and updating the regulatory and formal obligations.	Regulatory and formal obligations are current and are under regular review in accordance with documented processes.
Partnerships and engagement of stakeholders (including the public)	Identify all agencies with responsibilities for water resources and use of recycled water; regularly update the list of relevant agencies.	Lists all agencies with responsibilities for water resources and recycled water, and process for updating list.	The list is up to date and is under regular review in accordance with documented processes.
	Establish partnerships with agencies or organisations as necessary or where this will support the effective management of recycled water schemes.	Identifies partnerships that are necessary to ensure effective management of recycled water.	Relevant partnerships are established.

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
	Identify all stakeholders (including the public) affecting, or affected by, decisions or activities related to the use of recycled water.	Lists stakeholders and the decisions or activities that they affect or will be affected by.	Lists of stakeholders are periodically reviewed and updated.
	Engage users of recycled water; ensure responsibilities are identified and understood.	Identifies the responsibilities of users and processes employed to ensure they understand their responsibilities. This may include identifying the roles and responsibilities of the scheme retailer in ensuring all requirements of the AGWR are articulated.	Users of recycled water are regularly engaged and understand their responsibilities.
	Develop appropriate mechanisms and documentation for stakeholder commitment and involvement.	Identifies the mechanisms that will be employed to involve stakeholders and gain their commitment.	Mechanisms are effectively employed.
Recycled water policy	Develop a recycled water policy, endorsed by senior managers, to be implemented within an organisation or by participating agencies.	A recycled water policy has been endorsed by senior managers.	The recycled water policy is implemented within the organisation (see below).
	Ensure that the policy is visible and is communicated, understood and implemented by employees and contractors.	A process for communicating the policy has been identified and the recycled water policy is available to employees and contractors.	Key employees and contractors are aware of the policy as it relates to the implementation of their particular function. (Overlap with implementation of RWQMS element 7)

AGWR Element 2 – assessment of the recycled water system^e

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Intended uses and source of recycled water	Identify source of water.	Identifies the intended sources and uses, routes of exposure, receiving environments, endpoints, and environmental effects.	The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Identify intended uses, routes of exposure, receiving environments, endpoints and effects.	Identifies the intended end uses routes of exposure, receiving environments, endpoints, and environmental effects.	The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Consider inadvertent or unauthorised uses.	Identifies possible unintended and unauthorised end uses. If there is a staged approach, the RWQMS identifies current/existing and planned sources of recycled water and an indicative timeframe or milestones as appropriate.	The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
Recycled water system analysis	Assemble pertinent information and document key characteristics of the recycled water system to be considered.	Each part of the recycled water system from source to end use is characterised with respect to water quality, the factors affecting water quality, and the likely variability.	The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Assemble a team with appropriate knowledge and expertise.	Identifies the appropriate experts (or knowledge and expertise) that assessed the recycled water system.	The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current. There is evidence to demonstrate that the team assembled to assess the recycled water supply system has the appropriate knowledge and expertise to undertake this work.
	Construct a flow diagram of the recycled water system from the source to the application or receiving environments.	Summarises the results of the recycled water system analysis that has been undertaken by the appropriate team.	The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.

^e The assessment should be consistent with the principles of HACCP. The HACCP risk management framework was adopted for both the ADWG and AGWR, see section 1.2.2 and chapter 5 of the AGWR.

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
		<p>Includes a comprehensive flow diagram of the recycled water system consistent with section 2.2.2 of the AGWR.</p> <p>The diagram outlines all steps and processes from source to end use, including fate of out of specification recycled water and where the scheme has been constructed, and the flow diagram has been verified by those with specific knowledge of the system.</p>	
Assessment of water quality data	<p>Periodically review the recycled water system analysis.</p> <p>Assemble historical data about sewage, greywater or stormwater quality, as well as data from treatment plants and of recycled water supplied to users; identify gaps and assess reliability of data.</p>	<p>Documents a process to periodically review the recycled water system analysis, including flow diagram.</p> <p>Analysis remains relevant.</p> <p>Flow diagrams reflect what is currently in operation from source to end-use.</p> <p>Assembles historical data regarding source water quality, as well as data from treatment plants and/or recycled water supplied to users, identifying gaps and assessing reliability of the data (including exceedance data).</p> <p>Water quality data is periodically updated.</p>	<p>The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.</p> <p>The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.</p>
	<p>Assess data (using tools such as control charts and trends analysis), to identify trends and potential problems.</p>	<p>Identifies a process for assessing data to identify trends and potential problems in the recycled water system, including any exceedance data.</p> <p>Trends and potential problems resulting from data analysis are identified.</p>	<p>The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.</p>
Hazard identification and risk assessment	<p>Define the approach to hazard identification and risk assessment, considering both public and ecological health.</p> <p>Periodically review and update the hazard identification and risk assessment to incorporate any changes.</p>	<p>Documents the approach and methodology to be used for hazard identification and risk assessment, considering both public and ecological health.</p> <p>Documents a process to periodically review and update the hazard identification and risk assessment to incorporate any changes.</p> <p>The process must also identify triggers for review of hazard identification and risk assessment.</p>	<p>The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.</p> <p>The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.</p>

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
		Hazard identification and risk assessment have been reviewed and are current.	
	Identify and document hazards and hazardous events for each component of the recycled water system.	Identifies and documents hazards, sources and hazardous events for each component of the recycled water system.	The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Estimate the level of risk for each identified hazard or hazardous event.	Identifies the estimated level of risk for each identified hazard or hazardous event.	The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Consider inadvertent and unauthorised use or discharge.	Includes inadvertent and unauthorised use and discharge in risk assessment.	The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Determine significant risks and document priorities for risk management.	Identifies significant risks and documents priorities for risk management.	The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.
	Evaluate the major sources of uncertainty associated with each hazard and hazardous event and consider actions to reduce uncertainty.	Identifies the actions necessary to reduce uncertainty associated with each hazard and hazardous event.	The recycled water system assessment has been prepared and reviewed in accordance with the requirements of element 2 and remains current.

AGWR Element 3 – preventive measures for recycled water management

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Preventive measures and multiple barriers	Identify existing preventive measures system-wide for each significant hazard or hazardous event and estimate the residual risk.	Identifies preventive measures from source to end-use for each significant hazard or hazardous event and estimates the residual risk.	Documented preventative measures and strategies are implemented.
	Identify alternative or additional preventive measures that are required to ensure risks are reduced to acceptable levels.	Defines acceptable risk level and evaluates alternative or additional preventive measures where improvement is required.	Preventive measures remain effective, and barriers are operational.

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
	Document the preventive measures and strategies, addressing each significant risk	Documents the preventive measures and strategies for addressing each significant risk in the scheme RWQMS risk register.	
Critical control points	Assess preventive measures throughout the recycled water system to identify critical control points.	Identifies the critical control points. Selection of critical control points, mechanisms for control, critical limits and target criteria are supported by verifiable evidence.	SCADA ^f (or other controls system for the treatment plant) set points are consistent with the documented critical limits and target criteria.
	Establish mechanisms for operational control	Identifies the mechanisms for operational control at critical control points.	Critical control points are monitored, and critical limit exceedances actioned in accordance with procedures.
	Document the critical control points, critical limits, and target criteria.	Documents the critical control points, critical limits, and target criteria. Changes to critical control points, critical limits and target criteria are documented and justified.	Critical control points are reassessed where preventive measures are not effective.

AGWR Element 4 – operational procedures and process control

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Operational procedures	Identify procedures required for all processes and activities applied within the whole recycled water system (source to use).	Clearly identifies all the operational procedures that are required to ensure processes and activities, including preventative measures identified in the risk register, are formalised and actioned.	Control of processes is achieved through implementation of operational procedures, monitoring protocols and operational corrections in accordance with the RWQMS.

^f Supervisory control and data acquisition (SCADA)

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
	Document all procedures and compile into an operations manual.	Documents identified operations procedures which form part of the RWQMS or AMS O&M manual.	Records are maintained to demonstrate implementation of operational procedures, monitoring protocols and operational corrections identified in the RWQMS.
Operational monitoring	Develop monitoring protocols for operational performance of the recycled water supply system, including the selection of operational parameters and criteria, and the routine analysis of results.	Documents an operational monitoring protocol which specifies monitoring protocols for operational performance of the system, including the selection of operational parameters and criteria, and the routine analysis of results.	Operational monitoring is undertaken in accordance with protocol and appropriate records maintained.
	Document monitoring protocols into an operational monitoring plan.	See above.	
Operational corrections	Establish and document procedures for corrective action where operational parameters are not met.	Determine operational parameters (criteria) for fit-for-purpose recycled water for the end uses authorised by the licence. Establish procedures for corrective action where operational parameters are not met. There are documented processes in place to ensure that equipment performs adequately and provides sufficient flexibility and process control.	Corrective action is undertaken in accordance with procedures when operational parameters are not met, and such corrective action is effective in ensuring that equipment performs adequately and provides sufficient flexibility and process control.
	Establish rapid communication systems to deal with unexpected events.	Documents rapid communication systems to deal with unexpected events.	Rapid communication systems responding to unexpected events were followed.
Equipment capability and maintenance	Ensure that equipment performs adequately and provides sufficient flexibility and process control.	Establish and document arrangements for preventing out-of-specification water being supplied to end-use. Equipment and infrastructure in the recycled water supply system need to be adequately designed and of sufficient capacity (in terms of size, volume and detention times) to handle all flow rates (peak and otherwise), without limiting performance.	Monitoring and measuring equipment is demonstrated to be fit for purpose and calibrated at specified intervals.

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
	Establish a program for regular inspection and maintenance of all equipment, including monitoring equipment.	Documents an asset management and maintenance program that specifies inspection and maintenance requirements for all equipment, including monitoring equipment. The program must detail schedules and timelines, responsibilities, and resource requirements. Identify where the program is a part of O&M manual or AMS.	Regular inspection and maintenance of all equipment, from source to point of use, ensures continuing process capability. <i>Implementation of AMS is tested separately.</i>
Materials and chemicals	Ensure that only approved materials and chemicals are used.	Documents specifications for approved materials and chemicals as well as procedures for evaluating chemicals, materials and suppliers to ensure that only approved materials and chemicals are used.	Materials used in the recycled water system are appropriate and meet specifications. Chemicals used in the recycled water system are appropriate and meet specifications.
	Establish documented procedures for evaluating chemicals, materials and suppliers.	See above.	See above.

AGWR Element 5 – verification of recycled water quality and environmental performance

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Recycled water quality monitoring	Determine the characteristics to be monitored.	Identifies the characteristics to be monitored in the recycled water system.	The consolidated sampling system is followed, and monitoring data is verified to be representative and reliable. Procedures for sampling and testing are followed. Adequate resources are provided to ensure valid and reliable results of recycled water quality monitoring.
	Determine the points at which monitoring will be undertaken.	Identifies the points at which monitoring will be undertaken. Identifies the agreed levels of service with the scheme retail supplier.	Results of recycled water verification monitoring are used to evaluate conformity to criteria set in the RWQMS.

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
	Determine the frequency of monitoring.	Identifies the frequency of monitoring in order to obtain meaningful information and statistical validity.	
Application site and receiving environment monitoring	Determine the characteristics to be monitored and the points at which monitoring will be undertaken	Identifies the characteristics to be monitored at application sites and receiving environment, including the location and frequency of sampling.	
Documentation and reliability	Establish and document a sampling system for each characteristic, including the location and frequency of sampling, ensuring that monitoring data is representative and reliable.	Documents a consolidated sampling plan, including procurement procedures for sampling and testing, that is suitable for verification of whether the scheme is performing as intended.	
Satisfaction of users of recycled water	Establish an inquiry and response program for users of recycled water, including appropriate training of people responsible for the program.	Documents program, or arrangements for ensuring that there is a program, to monitor satisfaction of users and train the people responsible for the program.	Complaints and comments from users are evaluated.
Short-term evaluation of results	Establish procedures for the short-term review of monitoring data and satisfaction of users of recycled water.	Documents procedures for the short-term review of monitoring data. Procedures include rapid notification process for out of specification results. Procedures include a notification process to report issues/complaints regarding water quality from end-users.	Short-term evaluation of monitoring results and user feedback is used to verify that the quality of the recycled water conforms to established targets and meets user expectations.
	Develop reporting mechanisms internally and externally, where required.	Documents reporting mechanism for the short-term evaluation of results internally and externally, as appropriate.	Corrective responses to non-conformances are implemented in accordance with documented procedures; or where the PWU has deviated from documented procedure, reasons are documented, and the response has provided an equal or improved management of risk. Planned changes are controlled and consequences of unintended changes reviewed. Action is taken to mitigate any adverse effects, as necessary.
Corrective responses	Establish and document procedures for corrective responses to non-conformance or feedback from users of recycled water.	Documents procedures for corrective action in response to non-conformances or feedback from users.	Corrective action is undertaken in accordance with procedures in response to non-conformances or feedback from users, and such corrective action is effective.

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
	Establish rapid communication systems to deal with unexpected events.	Documents rapid communication systems to deal with unexpected events.	Rapid communication systems responding to unexpected events are followed.

AGWR Element 6 – management of incidents and emergencies

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Communication	Define communication protocols with the involvement of relevant agencies and prepare a contact list of key people, agencies and stakeholders.	Identifies communications protocols. Includes an up-to-date contact list of key people, appropriate agencies and stakeholders relevant to the management of incidents and emergencies.	The contact list is kept up-to-date.
	Develop a public and media communications strategy.	Documents the public and media communications strategy.	
Incident and emergency response protocols	Define potential incidents and emergencies and document procedures and response plans with the involvement of relevant agencies.	Define declared and notifiable incidents and emergencies. Document procedures and response plans, including rapid communications for incident notification, which reflect events identified in the risk register.	Incident and emergency communications protocols are implemented as described in the RWQMS and follow the requirements of the PWU's Reporting Manual.
	Train employees and regularly test emergency response plans.	Identifies training and testing plan.	Employees are trained in incident and emergency response protocols and the plans are tested as appropriate.
	Investigate any incidents or emergencies and revise protocols as necessary.	Identifies the process for reviewing incidents or emergencies and identifying new risks, or new or improved preventative measures and making any necessary amendments to operational procedures or protocols.	Following any incident or emergency situation, an investigation is undertaken, and all appropriate staff debriefed. Protocols have been revised as necessary.

AGWR Element 7 – operator, contractor and end user awareness and training

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
<p>Operator, contractor and end user awareness and involvement</p>	<p>Develop mechanisms and communication procedures to increase operator, contractor and end user awareness of, and participation in, recycled water quality management and environmental protection.</p>	<p>Identifies mechanisms and communication procedures to increase operator and contractor awareness of, and participation in, managing recycled water quality and environmental protection. Documents process (arrangements) for ensuring that the PWU fulfils the requirement to ensure end user awareness.</p>	<p>Operators have a general understanding of the regulatory requirements for the protection of public health. Operators and relevant contractors are aware of the recycled water policy and objectives of the RWQMS (overlap with element 1). Operators and relevant contractors understand water quality and environmental risk management principles set out in the RWQMS, characteristics of the recycled water supply system and preventive strategies in place, consequences of system failures and how to apply and follow risk management principles. Operators and relevant contractors must be aware of the arrangements that the PWU has in place to manage its obligations (e.g. communication with end users and training) and that the PWU must use best endeavours to ensure those arrangements align with the PWU's risk controls.</p>
<p>Operator, contractor and end user training</p>	<p>Ensure that operators, contractors and end users maintain the appropriate experience and qualifications.</p>	<p>Ensure employees, including contractors, are suitably competent and adequately trained to carry out their duties. Document process (arrangements) for ensuring that end users maintain appropriate experience and qualifications <i>as appropriate</i>.</p>	<p>Operators and contractors are aware of their contribution of the effectiveness of implementing the RWQMS, including benefits of improved performance, and the implications of not conforming to the requirements set out in the RWQMS.</p>
	<p>Identify training needs and ensure resources are available to support training programs.</p>	<p>Identify a process for identifying any gaps in experience and training of operators and key contractors and identify ongoing training needs. Includes a schedule of training with timeframes and resources identified.</p>	<p>Identified training has been delivered or is appropriately scheduled to be delivered so that operators and contractors are competent.</p>
	<p>Document training and maintain records of all training sessions.</p>	<p>Document processes and procedures for employee training and maintaining records of all employees training.</p>	<p>Records are maintained of all employee training, and processes and procedure for training are followed.</p>

AGWR Element 8 – community involvement and awareness

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Consultation with users of recycled water and the community	Assess requirements for effective involvement of users of recycled water and the community.	Identifies requirements for consultation, communication and education with users of recycled water and the community.	
	Develop a comprehensive strategy for consultation.	Documents a consultation strategy consistent with requirements.	The PWU undertakes consultation with users of recycled water and the community in accordance with the strategy.
Communication and education	Develop an active two-way communication program to inform users of recycled water and promote awareness of recycled water quality issues.	Documents communication and education arrangements with users of recycled water.	Arrangements are in place and are actively employed.
	Provide information on the impacts of unauthorised use.	Identifies the impact of unauthorised use to be communicated and process to be followed to communicate the information.	The identified information is communicated consistent with identified processes.
	Provide information on the benefits of recycled water use.	Identifies the benefits of recycled water use to be communicated and process to be followed to communicate the information.	The identified information is communicated consistent with identified process.

AGWR Element 9 – validation, research and development

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Validation of processes	Validate processes and procedures to ensure they control hazards effectively.	Documents validation processes and procedures that ensure effective control of hazards. <i>The processes and procedures must include an evaluation of scientific and technical information to demonstrate, as a minimum, that the log removal value claimed for each process and critical control point is valid.</i> <i>Where scheme validation relies on the WaterVal validation of treatment technologies framework (complements the objectives of the AGWR), the specific section needs to be identified.⁹</i>	Validation monitoring ^h is undertaken in accordance with documented processes and procedures to ensure hazards are effectively controlled.
	Revalidate processes when variations in conditions occur.	Identifies variations that may affect performance of processes and would trigger revalidation and documents processes for revalidation.	Revalidation of processes is done when variations occur.
Design of equipment	Validate the design of new equipment and infrastructure to ensure continuing reliability.	Documents validation processes and procedures that apply to the design of new equipment and infrastructure to ensure continuing reliability.	Validation of new equipment and infrastructure is undertaken in accordance with documented processes and procedures to ensure continuing reliability. <i>Implementation of AMS is tested separately.</i>
Investigative studies and research monitoring	Establish programs to increase understanding of the recycled water supply system and use this information to improve management of the recycled water supply system.	Documents a program to increase understanding of the recycled water supply system and to improve management of the system.	Implements program as documented.

Note: Chapter 5 of the AGWR has additional guidance on validation monitoring.

⁹ See: <https://www.waterra.com.au/research/waterval/>

^h The purpose of validation monitoring is to obtain evidence that the processes will achieve the target log removal for the scheme.

AGWR Element 10 – documentation and reporting

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Management of documentation and records	Document information pertinent to all aspects of recycled water quality management, and develop a document-control system to ensure current versions are in use.	Identifies information that is pertinent and uses a document control system to ensure current versions of key documents are in use.	Appropriate documentation is kept to provide a foundation for maintaining effective recycled water quality management. All documentation relevant to the implementation of the RWQMS are reviewed and current.
	Establish a records-management system and ensure that employees are trained to complete records.	Documents a records management system, and a process to ensure that employees are trained to complete records.	Records management system is maintained and records complete. Employees are trained to complete records.
	Periodically review documentation and revise as necessary.	Documents review timeframes.	Documents are reviewed and revised as necessary.
Reporting	Establish procedures for effective internal and external reporting.	Documents procedures for effective internal and external reporting.	Internal and external reporting is undertaken according to procedures.
	Produce an annual report aimed at users of recycled water, regulatory authorities and stakeholders.	Identifies requirements for the production of an annual report aimed at the users of the recycled water, regulatory authorities and stakeholders as appropriate.	Annual report is produced.

AGWR Element 11 – evaluation and audit

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Long-term evaluation of results	Collect and evaluate long-term data to assess performance and identify problems.	Documents processes and practices for the collection and evaluation of long-term data to assess performance and identifying problems.	Evaluation of long-term data is undertaken and results reviewed. Problems from long-term data evaluation are identified and addressed
	Document and report results.	Documents processes and practices for documenting and reporting results.	See above.

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Audit of recycled water quality management	Establish processes for internal and external audits.	Documents process for effective implementation and maintenance of recycled water quality management internal and external audits. The frequency and schedule of audits, as well as the responsibilities, requirements, procedures and reporting mechanisms, should be defined. Internal audits should also assess effectiveness of end-user controls.	Internal audit undertaken at planned intervals.
	Document and communicate audit results.	Identify that audit results are to be communicated to relevant stakeholders. <i>Audit results should be considered as a part of element 12 implementation.</i>	Audit results are documented and communicated.

AGWR Element 12 – review and continuous improvement

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
Review by senior managers	Senior managers review the effectiveness of the management system and evaluate the need for change.	Identify the process for senior managers to review the effectiveness of the management system and evaluation of the need for change, including approving and monitoring implementation of audit programs and review of audit outcomes. Processes and practices for periodic reviews of the RWQMS have been established.	Effectiveness of the management system is reviewed by senior managers, and the need for change is evaluated. Decisions and actions by senior management are documented.
Recycled water quality management improvement plan	Develop a recycled water quality management improvement plan.	A recycled water quality management improvement plan has been developed to address identified needs. Results of analysis and evaluation, and output from the management review is considered to determine the need for inclusion in improvement plan. The improvement plan is endorsed by senior executive and the RWQMS commits to implementing the plan. The improvement plan includes objectives, actions to be taken, accountability, timelines and reporting.	The improvement plan is implemented according to the plan.

Component	Summary of actions from the AGWR	ADEQUACY IPART considers that a system which meets the requirements will achieve the following outcomes	IMPLEMENTATION IPART considers that implementation of the system by the PWUs includes (but is not limited to) the following
	Ensure that the plan is communicated and implemented, and that improvements are monitored for effectiveness.	A process for communicating, implementing and monitoring effectiveness of continual improvement actions has been established.	The improvement plan is communicated and implemented, and improvements are monitored for effectiveness.

