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# NSW Guideline for Review and Audit of Drinking Water Management Systems

2022

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# Glossary

Item	Description
ADWG	<i>Australian Drinking Water Guidelines 2011</i>
AusAE 3100	A standard on Assurance Engagements ASAE 3100 Compliance Engagements Issued by the Auditing and Assurance Standards Board.
CCP	Critical Control Point – an activity, procedure or process that is critical to control a water quality hazard.
Control Point	An activity, procedure or process that controls a water quality hazard. The term includes critical control points and other preventive measures.
CRM system	Customer Request Management system
C.t	Chlorine concentration x contact time (a measure of disinfection capability)
DPE Water	Department of Planning and Environment Water Group
DWMS	Drinking Water Management System
DWQ	Drinking Water Quality
External audit	A review of DWMS adequacy and implementation against the criteria in Appendix A of this guideline conducted by a reviewer approved by NSW Health.
HACCP	Hazard Analysis and Critical Control Points
ISO 22000	Food safety management systems. A standard against which some water utilities have become certified. It includes the principles of HACCP and ISO 9000 requirements.
ISO 9000	A series of international standards on quality management and quality assurance.
IWCM	Integrated Water Cycle Management Strategy
Legislation	<i>Public Health Act 2010</i> (NSW): Section 25 of the Act requires utilities to have and comply with a QAP (DWMS).
Local water utility or LWU	Public Health Regulation 2022 (NSW): This Regulation sets out the safety measures for drinking water at Part 5
PHU	A water supplier defined under Division 2 Part 3 Chapter 6 (water supply functions) of the <i>Local Government Act 1993</i> (NSW).
QAP	Quality Assurance Program (required under the following NSW legislation: <i>Public Health Act 2010</i> , Public Health Regulation 2022 (NSW) (as amended).

# Glossary (cont.)

Item	Description
Review	<p>A review may be internal or external depending on the type of review being undertaken. For the purposes of this guideline, review means – annual review, readiness review or external audit.</p> <ul style="list-style-type: none"> <li>• Annual review – an internal review undertaken by the utility of annual DWMS performance.</li> <li>• Readiness review – a review undertaken in preparation for an external audit.</li> <li>• External audit – a review of DWMS adequacy and implementation against the criteria in Appendix A of this guideline conducted by a reviewer approved by NSW Health.</li> </ul>
Reviewer	<p>A reviewer undertakes a review of the DWMS. The reviewer can be external or internal to the utility, depending on the type of review being undertaken. For the external audit, the reviewer may not need formal auditing qualifications as long as they meet other criteria and are approved by NSW Health.</p>
RFS	New South Wales Rural Fire Service
SBP	Strategic Business Plan
SCADA	Supervisory Control And Data Acquisition
SES	State Emergency Service
SOP	Standard Operating Procedure
WQ	Water Quality
Water supplier	<p>Supplier of drinking water is the term used by the legislation. For the purposes of this document, the term utility, water utility or local water utility is taken to have the same meaning.</p>

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# Introduction

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Review and audit of how drinking water quality is being managed is part of a sound preventive risk management approach. The *Australian Drinking Water Guidelines* cover review and audit under Elements 11 and 12 of the Framework for Management of Drinking Water Quality (the Framework) (Table 1-1).

This document provides further guidance on when and how you should undertake review and audit of your DWMS and is a supporting document of the *NSW Guidelines for Drinking Water Management Systems* (NSW Guidelines)<sup>1</sup> and the *Drinking Water Management System Review and Audit Factsheet* (Factsheet).<sup>2</sup>

Review and audit can provide a water utility with a number of benefits including assessing how effective current management practices are. Gaps can be identified, and new strategies considered, where they are needed, to help fill the gaps. Review and audit also provide the water utility and NSW Health with an indication of how well the utility is complying with their drinking water management system (DWMS) and managing their water supply.

**Table 1-1. Elements and components of the Framework (NHMRC/NRMMC, 2011).**

Element	Component
1. Commitment to Drinking Water Quality Management	1.1 Drinking water quality policy
	1.2 Regulatory and formal requirements
	1.3 Engaging stakeholders
2. Assessment of the Drinking Water Supply System	2.1 Water supply system analysis
	2.2 Assessment of water quality data
	2.3 Hazard identification and risk assessment
3. Preventive Measures for Drinking Water Quality Management	3.1 Preventive measures and multiple barriers
	3.2 Critical control points
4. Operational Procedures and Process Control	4.1 Operational procedures
	4.2 Operational monitoring
	4.3 Corrective action
	4.4 Equipment capability and maintenance
	4.5 Materials and chemicals
5. Verification of Drinking Water Quality	5.1 Drinking water quality monitoring
	5.2 Consumer satisfaction
	5.3 Short-term evaluation of results
	5.4 Corrective action

<sup>1</sup><http://www.health.nsw.gov.au/environment/water/Publications/NSW-Guidelines-for-Drinking-Water-Management-Systems.pdf>

<sup>2</sup><http://www.health.nsw.gov.au/environment/water/Documents/dwms-review-and-audit.pdf>



Table 1-1. Elements and components of the Framework (NHMRC/NRMMC, 2011) (cont.)

Element	Component
6. Management of Incidents and Emergencies	6.1 Communication
	6.2 Incident and emergency response protocols
7. Employee Awareness and Training	7.1 Employee awareness and involvement
	7.2 Employee training
8. Community Involvement and Awareness	8.1 Community consultation
	8.2 Communication
9. Research and Development	9.1 Investigative studies and research monitoring
	9.2 Validation of processes
	9.3 Design of equipment
10. Documentation and Reporting	10.1 Management of documentation and records
	10.2 Reporting
11. Evaluation and Audit	11.1 Long-term evaluation of results
	11.2 Audit of drinking water quality management
12. Review and Continual Improvement	12.1 Review by senior executive
	12.2 Drinking water quality management improvement plan

## 1.1 NSW Context

A 'quality assurance program' (QAP) – known as a DWMS for local water utilities – is required by the *Public Health Act 2010 (NSW)* (the Act), along with the *Public Health Regulation 2022 (NSW)* (the Regulation). The Regulation sets out specific requirements for the DWMS.

**Utilities are required to have and comply with a DWMS.**

The DWMS must address the elements of the Framework as set out in the *Australian Drinking Water Guidelines (ADWG)* and specifically, clauses Part 5 of the Regulation. Water utilities must comply with their DWMS. The NSW Guidelines and Factsheet provide background information on developing a DWMS as well as the reporting and review requirements.

There are different types of review and audit required which can help you with continuous improvement of your DWMS:

### Annual Internal DWMS Review

Annual review is important for maintaining a functional drinking water management system and for identifying areas for improvement. Internal review involves internal staff and includes a review of the management system implementation and associated operational procedures, monitoring programs, and the records generated.

### External DWMS Audit

External audit provides opportunity for an independent third party (which may include a peer reviewer) to assess drinking water management system compliance and implementation, make

recommendations and identify opportunities for improvement. External audits should focus on assessing DWMS compliance, implementation and confirming the findings of annual reviews.

As well as providing important information to the utility, external audits will help provide valuable state-wide context information to NSW Health including:

- Understanding how well DWMS implementation is occurring throughout the state.

- Helping to understand the challenges to implementing and maintaining an adequate DWMS.
- Understanding the opportunities identified for water utilities to improve their DWMS and implementation and therefore, improve public health risk management.

The table below (Table 1-2) provides help on some questions that you might have regarding internal reviews and external audits of your DWMS.

**Table 1-2. Questions on DWMS reviews and external audits.**

Question	Annual Review	External Audit <sup>3</sup>
How frequent should the review be?	At least annually	Consult with your Public Health Unit (PHU)
Who initiates the review?	Water utility	Water utility or NSW Health
Who is the reviewer?	Water utility	NSW Health approved independent reviewer
What should be included in the review?	<ul style="list-style-type: none"> <li>• Implementation of management system</li> <li>• Risks effectively addressed</li> <li>• CCP performance</li> <li>• Response to exceptions</li> <li>• Progress on actions and improvements</li> </ul>	<p>Determine in consultation with PHU but will include all items from annual review and the following key items as detailed in Appendix A:</p> <ul style="list-style-type: none"> <li>• Effectiveness of DWMS implementation</li> <li>• CCP performance, including record keeping and response to exceptions</li> <li>• Adequacy of standard operating procedures (SOPs)</li> <li>• Progress on actions and opportunities for improvement</li> <li>• Any changes to the DWMS that should be submitted to NSW Health</li> <li>• Incident management procedures</li> <li>• Training, mentoring and support for staff to familiarise them with SOPs and CCPs</li> </ul>
What should be included in the report?	<ul style="list-style-type: none"> <li>• Annual Report Template<sup>4</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Consider all relevant records including Department of Planning and Environment Water (DPE Water) and PHU inspections or reports</li> <li>• Focus on identifying opportunities for improvement, rather than adopting a pass/fail approach</li> <li>• Provide clear and specific recommendations to improve drinking water risk management</li> <li>• Prioritise recommendations in order of risk</li> </ul>

<sup>3</sup> May be a 'readiness review' or an external audit.

<sup>4</sup> <http://www.health.nsw.gov.au/environment/water/Pages/water-utilities.aspx>

## 1.2 Target Audience

This document is intended for use by:

- Local water utilities in NSW.
- NSW Health and DPE Water staff involved with DWMS review, implementation and monitoring.
- DWMS reviewers.
- Other stakeholders involved in DWMS development, implementation and review.

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# Types of DWMS review and audit

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02

There are several types of DWMS review and audit:

- Annual review – required by the Regulation, is an internal review and should be carried out by all utilities annually.
- Readiness review – discretionary.
- External audit – required by the Regulation, is recommended under Element 11 of the ADWG Framework; and is part of the National Performance Reporting Framework for utilities with greater than 10,000 connected properties (utilities are required to report whether their risk-based drinking water management plan was externally assessed i.e. audited).

A ‘readiness review’ and the external audit, are both types of independent review. Independent reviews are beneficial because they allow a water utility’s system to be seen through a ‘new set of eyes’, meaning that things may be picked up that may have been missed in the annual review. Independent reviewers can also bring ideas for ways of improving your DWMS in terms of practices that have worked well for them or practices they have witnessed at other utilities. While a staged approach is recommended, utilities for whom the DWMS is well understood and which has mature processes in place, may choose to omit the Readiness Review.



## 2.1 Annual Review

Water utilities are required to undertake an internal annual review of their DWMS and submit the annual review report to NSW Health PHU. A checklist for the review, annual report template and annual report factsheet are all available from the [NSW Health](#) website.

Any gaps and/or opportunities for improvement should be compiled by the utility, added to the Drinking Water Quality Management Improvement Program, and addressed as per the identified priority and timeline.

If any changes have been made to the DWMS, the amended version also needs to be supplied to the PHU.

## 2.2 Readiness Review

To prepare for an external audit, utilities may choose to undertake a readiness review against the external audit criteria (Appendix A). The readiness review is not mandatory, but it provides the utility with the opportunity to have a ‘new set of eyes’ over their processes and identify any gaps or opportunities for improvement that can be addressed before the formal review occurs.

There is no obligation to submit the report to external parties, the outcomes are purely for use by the utility in helping to improve the adequacy of its DWMS.

The utility may choose to use a peer or mentor from another utility of a similar size and location and/or a reviewer approved by NSW Health Water Unit (see Chapter 3).

The readiness review is also a useful training exercise to help staff prepare for the external audit.

The reviewer will provide a report to the utility giving their opinion on the maturity of the DWMS including any identified gaps/opportunities for improvement. Although, there is no obligation for the utility to provide this report to the PHU or DPE Water the PHU must be notified immediately by phone call of any public health concerns identified during the review. NSW Health and DPE Water may also be able to assist

the water utility address the findings of the review and improve water quality management.

## 2.3 External Audit<sup>5</sup>

Water utilities should consult with their local PHU to develop an external audit frequency. Some utilities have effectively had an external audit of their DWMS with recent NSW Health support projects and therefore may not require an external audit in the near future.

An external audit is part of the National Performance Reporting Framework for utilities with greater than 10,000 connected properties (utilities are required to report whether their risk-based drinking water management plan was externally assessed i.e. audited).

Some utilities have chosen to seek certification of their DWMS to 'Framework-like' systems such as ISO 22000, HACCP and ISO 9001.<sup>6</sup> These utilities will be familiar with having external audits as part of their surveillance and re-certification process. However, utilities with these certifications should still work with NSW Health to ensure that they are also addressing the Framework in accordance with their DWMS obligations and will still be required to submit an annual DWMS review report to NSW Health.

NSW Health may also arrange for an external audit of a DWMS of a supplier of drinking water at any time. In these cases, the water utility will be informed of the requirement for an external audit by the PHU (via letter). This external audit will need to be completed within a given timeframe. The external audit criteria are based on the NSW Guidelines, the requirements of the Regulation and are detailed in Appendix A.

Utilities will need to engage an NSW Health approved reviewer (Chapter 3) to complete the external audit. The reviewer conducting the external audit should be external to the utility being audited but may not necessarily need to have formal auditor qualifications, as long as they meet NSW Health's requirements. Depending on the individual's background and experience, NSW Health may approve a peer/

mentor reviewer or a reviewer with a formal auditor qualification or other appropriate skills and qualifications as the external audit reviewer.

The DWMS reviewer should provide their report to the water utility and PHU. NSW Health will provide a copy of the report to DPE Water.

Key time points are:

- Utility seeks reviewer.
- Reviewer submits proposal to utility to undertake the audit.
- Utility selects preferred reviewer.
- Preferred reviewer completes and submits auditor approval application form (Appendix C) to NSW Health Water Unit if not already approved.
- Utility and preferred reviewer complete notice of external audit form (Appendix C) and utility submits to PHU.
- External audit commences in accordance with this guideline including reviewer consultation and engagement with PHU and DPE Water.
- Reviewer provides external audit report to the utility and PHU and DPE Water, as soon as possible after the site visit. If there are immediate risks to public health identified, the reviewer must inform PHU immediately by phone, before submitting the external audit report.

The external audit report should:

- Consider all relevant records including annual reviews, DPE Water and PHU inspections or reports.
- Focus on identifying opportunities for improvement, rather than adopting a pass/fail approach.
- Provide clear and specific recommendations to improve drinking water risk management.

A template for the report is provided in Appendix B.

<sup>5</sup> Public Health Regulation 2022 Clause 55.

<sup>6</sup> ISO 22000 – AS ISO 22000:2005 Food safety management systems – Requirements for any organization in the food chain; HACCP – Hazard Analysis and Critical Control Points; ISO 9001 – AS/NZS ISO 9001:2016 Quality management systems – Requirements.

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What types of DWMS reviewers are there?

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03

There will be different types of reviewers depending on the type of review being undertaken. The requirements for each type of reviewer are summarised in Table 3-1 and discussed in further detail below.

### 3.1 Annual Review

The Annual Review could be undertaken by internal or external personnel. The reviewer should have an understanding of the system being reviewed and as such, the annual review is usually the job of an internal staff member, although external personnel may be engaged. NSW Health approval of the reviewer is not required.

### 3.2 Readiness Review

As this review is intended to assess readiness for an external audit, the use of personnel external to the utility such as a peer or mentor is recommended. Peers or mentors could be from utilities in a similar geographic location with similar numbers of connections and treatment processes. Joint Organisations and water utility alliances or other organisations may be good sources from which to recruit personnel for this type of review.

The reviewer should at least have an understanding of the system being reviewed and its context. They should also have industry skills and experience as well as an understanding of the Framework, the NSW Guidelines and the DWMS legislative requirements. It is not essential that the peer/mentor reviewer is a qualified water quality management system auditor, but it would be beneficial for the reviewer to meet conflict of interest criteria such that the outcomes of the report are independent. The annual review outcomes should also be included in the scope of this review.

### 3.3 External Audit

An external audit requires personnel that are external to the utility being audited. NSW Health Water Unit approves the use of reviewers from the [Independent Pricing and Regulatory Tribunal \(IPART\) auditor panel](#). IPART Drinking Water Quality auditors must meet a rigorous set of criteria to be appointed to the panel. Reviewers may also be sourced from the [Exemplar Global list of water quality management system auditors](#). NSW Health Water Unit may also approve a reviewer without a formal auditor qualification, should they have demonstrated the appropriate background and experience to undertake the audit. In fact, a utility may choose to invite a person from another similar utility to undertake an external audit.

Reviewers must also meet conflict of interest criteria such that the utility and NSW Health can be confident that the reviewer performs the external audit without bias.

If there is more than one reviewer used for the external audit, those personnel must also satisfy the same criteria, including the conflict of interest criteria. As above, the annual review outcomes should also be included as part of this review



Table 3-1. Requirements for reviewers.

Review type	Reviewer	Requirements	NSW Health approval required?
Annual review	Usually internal or could be external personnel	An understanding of the system being reviewed.	No
Readiness Review	Personnel external (such as a peer/mentor) to the utility being reviewed	<p>At least the following:</p> <ul style="list-style-type: none"> <li>An understanding of the system being reviewed in terms of similar geographic location, number of connections, type of processes, type of consumers etc.</li> <li>Relevant qualifications and experience in the water industry.</li> <li>An understanding of the <i>Framework for Management of Drinking Water Quality</i>.</li> <li>An understanding of the <i>NSW Guidelines for Drinking Water Management Systems</i>.</li> </ul> <p>May be Exemplar Global Water Quality Management System certified but not essential.</p> <p>Ideally, the reviewer should also meet the same conflict of interest criteria for external audit reviewers below.</p>	No
External Audit	Personnel external to the utility being audited	<p>A person with appropriate experience and qualifications to undertake the audit e.g.:</p> <ul style="list-style-type: none"> <li>Exemplar Global Water Quality Management System certification <a href="https://exemplarlink.org/EGLinkRegister/Register">https://exemplarlink.org/EGLinkRegister/Register</a></li> <li>A water quality auditor from the Independent Pricing and Regulatory Tribunal's Water Licensing Audit and Technical Panel <a href="https://www.ipart.nsw.gov.au/Home/Industries/Water/Alternate-water-utilities-WICA/Audit-Guidelines-Technical-Services-Audit-Panel">https://www.ipart.nsw.gov.au/Home/Industries/Water/Alternate-water-utilities-WICA/Audit-Guidelines-Technical-Services-Audit-Panel</a></li> <li>Another person, without a formal auditor qualification, who has demonstrated the appropriate background and experience and is approved by NSW Health to undertake the external audit.</li> </ul> <p>The reviewer must also meet the following conflict of interest criteria:</p> <ul style="list-style-type: none"> <li>Have no personal bias which would affect decisions in relation to the utility being audited.</li> <li>Has not been employed or engaged (consultancy) by the utility being audited, in the previous two years.</li> <li>Must not use anyone on the audit team who does not also satisfy the above criteria.</li> </ul>	Yes

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# What is my Role in DWMS review and audit?

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Various stakeholders are involved in a DWMS review, each stakeholder will have different roles and responsibilities, depending on the type of review being undertaken.

The key stakeholders are:

- Water utility
- DWMS reviewer
- NSW Health
- DPE Water

## 4.1 Water utility

A water utility has different responsibilities and objectives depending on the type of review or audit.

- Annual review:
  - Annual: Undertake an annual review of the DWMS and provide the report to the PHU.
- Readiness review:
  - Discretionary: Undertake a readiness review of the DWMS prior to a DWMS external audit (while recommended, there is no obligation on the utility to undertake the readiness review).
- External audit:
  - Confirm preferred DWMS reviewer is approved by NSW Health.
  - Make information available to DWMS reviewer on request.
  - Liaise with DWMS reviewer to develop a workable audit plan.
  - Make staff available for the audit.
  - Submit notice of external audit of drinking water management systems form (Appendix C) to PHU.
  - Engage DWMS reviewer.

In addition, the water utility should ensure that its staff members are prepared for the external audit in particular and know what will be expected of them. Undertaking a discretionary readiness review via a peer/mentor is a good way of helping to prepare staff.

## 4.2 DWMS Reviewer

A DWMS reviewer will be engaged to undertake the external audit required by the Regulation. The reviewer should have appropriate experience and qualifications to undertake the review (see Chapter 3). Specific obligations of DWMS reviewers are:

- Submit proposal to undertake DWMS external audit, to utility, on request.
- Show evidence of NSW Health approval to utility and complete conflict of interest declaration on notice of external audit form (Appendix C).
- On receipt of confirmation from utility, commence audit process.
- Liaise with required parties to develop a relevant and appropriate audit plan.
- Assemble a relevant team to undertake the audit (the number of team members will depend on the size and complexity of the system and the time allowed for completing the review).
- Undertake the audit according to the audit plan, including holding a close-out meeting with the utility including presentation of findings to water utility senior executives/Councillors.
- Assess the outcomes of the audit against the Regulation requirements and write a summary and detailed findings report of the adequacy of the DWMS (Appendix B).
- Provide the report (Appendix B) to the water utility and PHU.

## 4.3 NSW Health

NSW Health has several obligations which overarch the DWMS external audit:

- Provision of advice in terms of review and assessment of DWMS.
- Water Unit approval of external reviewer and maintain list of approved reviewers.

- PHU liaison with utility and DWMS reviewer including provision of advice which may be relevant for the site component of the review (such as recent water quality incidents, advice on clause exemptions).
- Where possible, PHU attendance at the site components of the review (noting that attendance for the whole site visit may not always be possible due to distance and availability of staff members).

NSW Health also has a role in the annual reviews, which utilities are required to undertake.

## 4.4 Department of Planning and Environment Water

DPE Water has a supporting role for the external audit process including:

- Liaison with PHU representative, utility and DWMS reviewer/auditor including provision of advice on inspection findings which may be relevant for the site component of the review (such as reservoir integrity breaches).
- Attendance at the site components of the review if available.

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# DWMS review, audit scope and information collection

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Element 11 of the Framework states that auditing is the systematic evaluation of activities and processes to confirm that objectives are being met. Specifically, Element 11 requires utilities to undertake long-term evaluation of drinking water quality results and undertake an audit of drinking water quality management. An external audit is an important component of review.

## 5.1 What needs to be included in DWMS review and audit?

The reviewer will need to set the scope of the review before commencing. The scope will likely change depending on the type of review, what has been reviewed previously (e.g. different sites where a utility has more than one treatment plant or system) and with direction from NSW Health and DPE Water as required (Table 5-1).

**Table 5-1. Considerations for inclusion in the scope of a DWMS review and audit.**

Scope item	Detail
Which regulators should have input?	In compiling the scope for an external audit, the reviewer must consult with NSW Health (PHU) and DPE Water (local representative) for their inputs.
What type of water should be included?	This guideline covers drinking water. Other water supplied such as raw water and recycled water, are out of scope for the DWMS review (other than where they may impact on public health risk to the drinking water).
Over what timeframe should the review be undertaken?	<p>Reviews are normally undertaken over a defined time period to get a picture of how the organisation performed over that timeframe. Review periods will change depending on review type e.g.:</p> <ul style="list-style-type: none"> <li>• <b>Annual Review:</b> For the DWMS annual review, the review should be undertaken at least one year after the last review. This can be done on a calendar or financial year basis.</li> <li>• <b>Readiness Review:</b> These types of reviews will have a timeframe set by the utility and may be likely to precede an external audit.</li> <li>• <b>External Audit:</b> External audits commissioned by NSW Health under the <i>Public Health Act 2010</i> will have a timeframe determined by NSW Health.</li> </ul>
What requirements will be assessed?	The Regulation requirements have been prioritised to focus the external audit scope on areas of public health concern. A priority score has been given to each of the checklist criterion associated with each requirement in Appendix A. In consultation with NSW Health the audit scope can be focused on select elements of the Framework for the Management of Drinking Water Quality. As a minimum the criteria with a priority 1 score within each element included in the scope must be reviewed and assessed during an external audit. Criteria with priority 2 and 3 scores should be considered for inclusion in the external audit scope depending on the water utility's audit history and in consultation with the PHU.
What documents and information should be included in the review?	It is important that the reviewer considers the annual review findings as part of the evidence for the external audit. A number of documents and other information types will make up a water utility's DWMS (Figure 5-1). The reviewer will need to determine the information that best represents the requirements of the Regulation and include these in the scope of the review. Further guidance is provided in Appendix A.

Table 5-1. Considerations for inclusion in the scope of a DWMS review and audit (cont.)

Scope item	Detail
What sites or systems should be included in the review?	<p>Depending on their size, utilities may be spread across several sites, cover a wide geographical area, include multiple water supply systems and have differing features at different sites e.g. a reticulated raw water system (of importance for cross connections) and a drinking water system. The scope of sites for the review will therefore have to consider the pertinent system characteristics to ensure representation. Consideration should be given to rotating through sites to ensure good review coverage.</p>
What assets should be covered in the review?	<p>Particular assets will also be relevant for inclusion in the review scope. Information which should be considered in deciding on the asset scope includes:</p> <ul style="list-style-type: none"> <li>• Previous review history of that asset.</li> <li>• Whether the site has been renewed, upgraded or modified since the previous review.</li> <li>• Any assets associated with water quality incidents.</li> <li>• Assets having areas of concern e.g. as identified during separate DPE Water inspections.</li> <li>• Complexity of particular assets.</li> <li>• Any systems where other water types are involved including recycled water and raw water reticulation systems.</li> <li>• All system CCPs should always be included in the review (for the distribution reservoir CCP, a sample of reservoirs is adequate).</li> <li>• All flow diagram/s, at least for the treatment components, should always be checked for accuracy by undertaking a physical comparison of the flow diagram information, against the assets represented.</li> </ul>
Which personnel should be part of the review?	<p>Utilities employ their own staff members as well as engage consultants and contractors. Any of these personnel may be pertinent to the review and should be considered in setting the scope.</p> <p>The reviewer should liaise with the water utility, NSW Health and DPE Water, to determine the relevant personnel to be interviewed.</p>
Are there any other considerations for inclusion in the review?	<p>For the external audit or readiness review, items identified in previous DPE Water inspections and/or direction from the PHU, as well as the annual review findings, should be included.</p> <p>For the external audit, the reviewer should also check for exemptions. Clause 54 of the Regulation grants a power for a utility to be exempted from matters required under Part 5 Division 2 in a quality assurance program. A notification of an exemption given by the Chief Health Officer under this clause must be published on the website of the Ministry of Health. The reviewer should consult the website as well as confirm any exempted scope items with the PHU, before commencing the external audit.</p>

Figure 5-1. Example minimum requirements for a water utility’s DWMS.





## 5.2 What information should be considered for external audit?

As well as this guideline, there are many useful documents that could be used to help guide the external audit (see Chapter 7). In summary, the reviewer will need to include a combination of

methods in collecting evidence to help provide sufficient assurance for the review of each requirement of the Regulation.

Depending on the type and focus of the review, examples of methods for collecting evidence, might include those outlined in Table 5-2.

**Table 5-2. Methods for collecting evidence.**

Methods for collecting evidence	Example
Identifying the existence of systems and controls	Is there a system in place for responding to CCP exceptions? Are SOPs in place?
Confirming and testing systems and controls	Can records be found that confirm that the CCP exception was responded to as required (including notification)? Was the SOP followed?
Walking through areas Understanding of group culture and diligence	Are the areas neat and tidy? Do staff members express concerns? Are there enough resources dedicated to the DWMS?
Enquiries at different staff levels in the utility	Do senior managers know the system? Can they explain their role and the key points of the system they are responsible for in managing public health risk? Can they explain what would happen in the event of a water quality incident? Do operators know their roles? How would they respond to a CCP exception? How do operators conduct routine checks such as reservoir inspections? Have operators been trained in SOPs?
Talking with personnel that are external to the utility which is the subject of the review	Records from DPE Water and PHU inspections or reports. Discussion with DPE Water Inspectors and NSW Health Environmental Health Officers.

The reviewer should also keep in mind how confident they are in the evidence that they are collecting. The evidence may take several forms including original data (such as procedures and the outcomes of those procedures), testing knowledge of a procedure, witnessing the implementation of a procedure and evidence from others outside of the water utility. Annual reviews should be considered as an input to the external audit as they provide valuable information to the reviewer.

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**Professional Scepticism (ASAE 3100)**  
**An attitude that includes a questioning mind, being alert to conditions which may indicate possible misstatement or non-compliance, and a critical assessment of evidence.**

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It is up to the reviewer to make sure they have enough, good quality evidence on which to undertake the audit. Ask questions and use your 'professional scepticism' to critically check and review the evidence. At the end of the review process, you should feel confident that you have seen sufficient and appropriate evidence on which to base your findings.

### 5.2.1 Special Considerations in Gathering Information

There may be constraints on the resources and evidence available for the audit, depending on the size of water utility or the water utility you are reviewing. To help address the range of evidence that may be available, further guidance is provided in Appendix A. Criteria are provided in a checklist format to be looked at by the reviewer, for each requirement of the Regulation (by Framework element). Example opportunities for improvement have been provided to help guide assessment as well as information on the types of evidence that should be viewed, to contribute to the assessment outcome.

The reviewer should assess whether the DWMS adequately meets the requirements of each part of the Regulation, as recommended by the NSW Guidance and the ADWG, and how the utility is complying with its DWMS. The reviewer will need to assess what is in place and assess whether it is adequate for protecting public health or whether there are opportunities for improvement.

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# How do I report the DWMS review findings?

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06

The objective of any DWMS review is to provide constructive findings from which the water supplier can improve its DWMS.

Reporting requirements will depend on the type of review being undertaken (Table 6-1).

**Table 6-1. Reporting requirements for DWMS reviews.**

Review type	Report format	Report recipient/s
Annual Review	A brief report is required. Water utilities may use the template options available on the <a href="#">NSW Health website</a> or develop their own format. Water utilities can contact their local PHU for assistance in using the templates.	The report must be provided to the PHU. If the DWMS has been updated as a result of the review, the updated DWMS must also be provided to the PHU at the same time.
Readiness Review	The reviewer may use the external audit report template options available in this document and on the <a href="#">NSW Health website</a> or develop their own format.	The report is provided to the water utility. The water utility may choose to review the findings with the PHU.
External Audit	The reviewer should use the 'summary' and 'detailed findings' templates provided in Appendix B. Opportunities for improvement and recommendations must be listed separately.	The 'summary' and 'detailed findings' reports must be provided to the utility and the PHU. The PHU will provide the reports to DPE Water.

The reviewer should assign a finding against each area reviewed as shown in Table 6-2, the objective of all the different types of review is not 'pass/fail' but improvement of the DWMS.

Reviewers must state the evidence which supports their decision and record their observations.

In writing their reports, reviewers should write succinctly and where appropriate, provide opportunities for improvement (OFI) and recommendations that are cross-referenced to what is being assessed (Table 6-2):

- OFIs represent actions where the reviewer believes the process is adequate for addressing public health risk but could be improved. A requirement that is considered fully met does not need to have an OFI assigned however, the reviewer may choose to do so if they see a way that may help the water supplier better meet the needs of the clause. However, the first priority is to address the essential requirements and any identified gaps in the DWMS.

- Recommendations represent actions where the reviewer has identified a significant DWMS gap and if not addressed, public health may be compromised. Recommendations should be made for all non-compliant findings.

Table 6-2. Assessment findings<sup>7</sup>

Finding	Description	Example	Opportunity for improvement/ Recommendation
Compliant	Sufficient evidence is available to confirm that the requirements have been met.	The DWMS includes reference to levels of service covering a commitment to meeting public health drinking water quality objectives in strategic planning documents.	The Reviewer does not need to provide an OFI but may decide to in the spirit of continual improvement. No recommendations are required.
Compliant (minor shortcomings)	Sufficient evidence is available to confirm that the requirements have been met apart from minor shortcomings which do not compromise the ability of the utility to adequately manage public health risk.	Communication of the commitment to meeting public health drinking water quality objectives to staff occurs but the approach has not yet been formalised. An OFI to formalise the approach has been recorded.	The Reviewers should detail the shortcomings and provide an OFI that addresses the shortcomings.
Non compliant (non-material)	Sufficient evidence is not available to confirm that the requirements have been met and the deficiency does not adversely impact the ability of the utility to adequately manage public health risk.	The DWMS does not describe how the commitment to drinking water quality management is linked to and included in planning and policy documents (SBP, IWCM, Financial Plan, Asset Management Plans). A recommendation to address this gap has been recorded.	The Reviewer should provide recommendations to address the full DWMS requirement. OFIs may also be provided.
Non compliant (material)	Sufficient evidence is not available to confirm the requirements have been met and the deficiency may adversely impact the ability of the utility to adequately manage public health risk.	Based on the utility's context, hazardous events and hazards are missing from the risk register. A recommendation to address this gap has been recorded.	The Reviewer should immediately notify the PHU if there is a risk to public health and provide recommendations to address the full DWMS requirement. OFIs may also be provided.
No requirement	There is no requirement for the utility to meet this criterion, or it is not relevant, within the audit period.	It may not be possible to test all parts of a criterion – for instance, if no customer complaints have been received in an audit period, it may not be possible to sight records to confirm that the customer complaint process was followed in practice.	N/A

<sup>7</sup> Adapted from IPART (2019) Public Water Utility Audit Guideline July 2019.

Where the Reviewer has determined the response is anything other than compliant, the Reviewer should provide their opinion on the public health materiality of the findings. As a guide, NSW Health has assigned a preliminary 'first-pass' of the materiality of non-compliance for each criterion (Appendix A).

It is the Reviewer's responsibility to check they are satisfied with the default materiality grading, this is because in some circumstances, the materiality may change depending on the evidence available.

As an example, a reasonable explanation of what happens in practice in the absence of records, is better than no records at all and no good answer and therefore a non-material non-compliance may be appropriate. However, where document keeping and record control is related to critical control points or other priority areas, not having these things in place would be material. In keeping with good audit practice (ISO 19011), the reviewer should state their reasoning for the grade they have assigned based on the evidence. The reasoning will also help provide a specific evidence base for areas for improvement, for the auditee.

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# References and other Supporting Information

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# References

- Australian Government Auditing and Assurance Standards Board (2017) Standard on Assurance Engagements ASAE 3100 *Compliance Engagements* Issued by the Auditing and Assurance Standards Board ([https://www.auasb.gov.au/admin/file/content102/c3/ASAE\\_3100\\_Compliance\\_Engagements.pdf](https://www.auasb.gov.au/admin/file/content102/c3/ASAE_3100_Compliance_Engagements.pdf)).
- Department of Primary Industries Office of Water (2014) *Assuring the safety of drinking water supplies*. Circular No. LWU 18 WS14/109 (LWU 18).
- Department of Water and Energy (2007) *Best-Practice Management of Water Supply and Sewerage Guidelines*. August 2007 ([https://www.industry.nsw.gov.au/\\_data/assets/pdf\\_file/0004/147073/town\\_planning\\_water\\_utilities\\_best-practice\\_management\\_of\\_water\\_supply\\_and\\_sewerage\\_guidelines\\_2007.pdf](https://www.industry.nsw.gov.au/_data/assets/pdf_file/0004/147073/town_planning_water_utilities_best-practice_management_of_water_supply_and_sewerage_guidelines_2007.pdf))
- Hutchins, G. (2016) Value Added Auditing The Standard Manual of Risk-Based Process-Auditing.
- ISO 14011 Guideline for Environmental Auditing.
- ISO 17021:2011 Conformity Assessment – Requirements for bodies providing audit and certification of management systems (contains principles and requirements for the competence, consistency and impartiality of the audit and certification of management systems of all types).
- ISO 19011:2018 Guidelines for auditing management systems.
- Local Government Act 1993 (NSW) <https://legislation.nsw.gov.au/view/html/inforce/current/act-1993-030>
- NHMRC/NRMMC (National Health and Medical Research Council/Natural Resource Management Ministerial Council) (2011) *Australian Drinking Water Guidelines* (ADWG) National Water Quality Management Strategy. ISBN Online: 1864965118 (current version).
- NSW Health Drinking Water Monitoring Program – updated October 2011.
- NSW Health/NSW Department of Primary Industries – Office of Water (2013) *NSW Guidelines for Drinking Water Management Systems*. ISBN 978-1-74187-890-5.
- Public Health Act 2010 (NSW) <https://legislation.nsw.gov.au/view/html/inforce/current/act-2010-127#pt.3-div.3>
- Public Health Regulation 2022 (NSW) <https://legislation.nsw.gov.au/view/pdf/asmade/sl-2022-502>
- World Health Organization and International Water Association (2015) *A practical guide to auditing water safety plans*. ISBN 978 92 4 150952 7.



# Appendix A

The following (excel spreadsheet) checklist criteria have been developed to guide the assessment of how well a water utility is meeting the requirements of the Regulation. The Reviewer should consider whether the water utility has fulfilled the DWMS requirement and is implementing the requirement in practice. This checklist should be used with reference to the NSW Guidelines for Drinking Water Management Systems and the *Australian Drinking Water Guidelines* in considering whether the requirement has been appropriately or adequately met.

The Regulation requirements have been prioritised to focus the external audit scope on areas of public health concern. A priority score has been given to each of the checklist criteria associated with each requirement in the checklist criterion column (column E). As a minimum, the criteria with a priority 1 score must be reviewed and assessed for each element of the Framework for the Management of Drinking Water Quality included in the audit scope. Criteria with priority 2 and 3 scores should be considered for inclusion depending on the water utility's audit history and in consultation with the PHU.

As a guide, NSW Health has assigned a preliminary assessment of the materiality of a non-compliance for each criterion (column F). The Reviewer should check they are satisfied with the default non-compliance materiality assessment, as in some circumstances, the materiality of non-compliance may change depending on the evidence available.

A fillable excel spreadsheet version of the checklist criteria is available upon request to [hssg-waterqual@health.nsw.gov.au](mailto:hssg-waterqual@health.nsw.gov.au) or can be downloaded [here](#).

ADWG Element	ADWG Framework Component	ADWG Framework Action	Checklist Criterion	Key Priority	Default Non-Compliance Grade	Opportunities For Improvement (OFI)	Recommendations
1-Commitment to Drinking Water Quality Management	1.0-A commitment to drinking water quality management	<p>1.0-Organisational support and long term commitment by senior executives is the foundation to system for drinking water quality management.</p> <p>10.1- Document information pertinent to all aspects of drinking water quality management.</p>	<p>1-A: The water utility has an endorsed (by the organisation) current drinking water management system, that has been submitted to the Public Health Unit.</p> <p><b>Note:</b> The following should be checked for overall currency as part of the currency of the DWMS:</p> <ul style="list-style-type: none"> <li>- Drinking water quality policy statements</li> <li>- Critical control point information</li> <li>- Incident and Emergency Management procedures</li> <li>- Drinking Water Quality Management Improvement Plan</li> <li>- Procedures.</li> </ul> <p>Should be reviewed and up to date according to review cycle.</p> <p>Lack of currency for a component does not necessarily mean non-compliant grading should be given. It may be appropriate for the compliant with minor shortcomings grade to be applied provided the minor shortcomings are listed as OFIs.</p>	1	Non-compliant (material)		
1-Commitment to Drinking Water Quality Management	1.1-Drinking water quality policy	1.1.a-Formulate a drinking water policy, endorsed by senior executive, to be implemented throughout the organisation.	1-B: A drinking water quality policy covering commitment to public health water quality objectives is included in the DWMS. <p><b>Note:</b> Consider SBP mission statement and/or levels of service as well as a standalone drinking water quality policy.</p>	1	Non-compliant (material)	Review and update the drinking water policy according to review cycle.	
1-Commitment to Drinking Water Quality Management	1.1-Drinking water quality policy and formal requirements	1.1.b-Ensure that the policy is visible and is communicated, understood and implemented by employees.	1-C: Communication to staff of the commitment to drinking water quality is undertaken as described in the DWMS. <p><b>Note:</b> This communication may occur through staff induction, training and supervision, monthly communication of water quality results, toolbox meetings, participation in NSW Health water workshops, etc.</p>	1	Non-compliant (non-material)	Document the responsibility for updating and implementing the DWMS. Keep records that confirm the communication process is implemented in practice.	
1-Commitment to Drinking Water Quality Management	1.2-Regulatory and formal requirements	1.2.a-Identify and document all relevant regulatory formal requirements.	1-D: The DWMS describes how the commitment to drinking water quality management is included in planning and policy documents such as: <ul style="list-style-type: none"> <li>- SBP</li> <li>- IWC/M</li> <li>- Financial Plan</li> <li>- Asset Management Plans</li> </ul> <p><b>Note:</b> Planning documents should be reviewed to ensure the inclusion of the commitment to water quality. For example the SBP should include levels of service covering a commitment to meeting public health drinking water quality objectives, such as commitment to maintaining and implementing a Drinking Water Management System consistent with the Framework for the Management of Drinking Water Quality.</p>	3	Non-compliant (non-material)	Include in additional relevant planning documents.	
1-Commitment to Drinking Water Quality Management	1.2-Regulatory and formal requirements	1.2-Identify and document all relevant regulatory formal requirements	1-E: The DWMS documents regulatory and formal requirements and includes periodic review of requirements. <p><b>Note:</b> Review of requirements may occur through the review and revision of the Strategic Business Plan and the IWC/M Strategy. Water supplier responsibilities in codes and standards should be captured in the SBP review.</p>	1	Non-compliant (non-material)		
1-Commitment to Drinking Water Quality Management	1.3-Engaging stakeholders	1.3-Identify all stakeholders who could affect, or be affected by, decisions or activities of the drinking water supplier.	1-F: The DWMS documents and describes stakeholders in the activities of the drinking water supplier including the type of communication and engagement and periodic review of stakeholders. <p><b>Note:</b> acceptable stakeholder identification and engagement could be through current:</p> <ul style="list-style-type: none"> <li>- SBP</li> <li>- Community Engagement Strategy</li> <li>- IWC/M</li> </ul>	1	Non-compliant (non-material)		
2-Assessment of the Drinking Water Supply System	2.1-Water supply system analysis	2.1.a-Assemble a team with appropriate knowledge and expertise.	2-A: An appropriate team of people undertake the identification and assessment of potential health risks, including representation of the following roles: <ul style="list-style-type: none"> <li>- Coordination role</li> <li>- Leadership role</li> <li>- Operators</li> <li>- Environmental Health Officer (the person responsible for local health issues, water sampling and/or reviewing results)</li> <li>- NSW Health representative</li> <li>- Water quality and treatment process expert</li> <li>- DPE-Water inspector for the region was invited.</li> </ul>	1	Non-compliant (material)		

ADWG Element	ADWG Framework Component	ADWG Framework Action	Checklist Criterion	Key Priority	Default Non-Compliance Grade	Opportunities For Improvement (OFI)	Recommendations
2-Assessment of the Drinking Water Supply System	2.1-Water supply system analysis	2.1.b-Construct a flow diagram of the water supply system from catchment to consumer.	2-B: DWMS (either directly or through reference to a Risk Assessment Report) contains a system description from catchment to consumer, including: - Catchment map - Catchment description - Major towns and transport corridors - Major pollution sources - Potentially polluting land uses - Major rivers, weirs, dams, lakes, bores - Conditions for water harvesting from particular sources (e.g. pumping rules) - Treatment description and mode of plant operation - Description of distribution and reticulation system - Relationships to third parties for water supply or receipt - Review of previous incidents - Major changes to infrastructure - Water quality analysis.	1	Non-compliant (material)	Include water sharing agreements in the system description.	
		10.1.a-Document information pertinent to all aspects of drinking water quality management.	2-C: The DWMS includes a flow diagram(s) which accurately represents the system and includes water source(s), any raw water storage, treatment and distribution systems. The flow diagram for the treatment system/s shows: - All treatment components - Chemical dosing points and chemical type (fluoride, coagulant etc) - Any bypasses - Any flows returned to any part of the treatment system (i.e. recycling supernatant) - Outline all steps and processes, whether or not they are under control of the drinking water supplier. <b>Note:</b> The flow diagram accuracy has been verified by someone with the authority to do this for the part of the system the flow diagram represents (such as the lead operator or water quality manager). The auditor must walk through the flow diagram at the plant (at least) to check that the diagram is accurate. The audit scope will clarify which water treatment plants and other system components are within the audit sample.	1	Non-compliant (material)	Include handover points of water quality responsibility in the flow diagram Include monitoring points and CCP's in the flow diagram.	
2-Assessment of the Drinking Water Supply System	2.2-Assessment of water quality data	2.2.a-Assemble historical data from source waters, treatment plants and finished water supplied to consumers (over time and following specific events).	2-D: Appropriate sources of information were used for water quality analysis for the risk assessment workshop. These could include: - NSW Health Drinking Water Monitoring Program - NSW Health Project Monitoring - SCADA data - Operator physical testing - Laboratory physical testing - State of Environment reporting - Algal Monitoring - Bureau of Meteorology - DPE-Water (including Local Water Utility performance monitoring data and reports).	1	Non-compliant (non-material)		
		2.2.b-List and examine evidence 2.2.c-Assess data using tools such as control charts and trends analysis to identify trends and potential problems.	2-E: Appropriate water quality data has been reviewed and the analysis used to help inform the identification and assessment of public health risks (e.g. through the use of trend graphs and result summary tables) assessed in the risk assessment workshop. <b>Note:</b> The Annual Review report could be used as an example of how this criterion might be fulfilled.	1	Non-compliant (material)		
2-Assessment of the Drinking Water Supply System	2.3-Hazard identification and risk assessment	2.3.a-Define the approach and methodology to be used for hazard identification and risk assessment.	2-F: The risk identification and assessment methodology (including the risk matrix) used considers risks to public health and is documented in the DWMS.	1	Non-compliant (material)	Demonstrate how the risk assessment methodology used is appropriate for assessing public health risks and the outcomes are at least comparable with those in the ADWG (Table 3.3).	
		2.3.b-Identify and document hazards, sources and hazardous events for each component of the water supply system. 2.3.c-Estimate the level of risk for each identified hazard or hazardous event.	2-G: A risk assessment has been undertaken to identify hazards and potential health risks to the drinking water supply system.	1	Non-compliant (material)		
2-Assessment of the Drinking Water Supply System	2.3-Hazard identification and risk assessment	2.3.b-Identify and document hazards, sources and hazardous events for each component of the water supply system.	2-H: On a sample basis, hazardous events and identified hazards in the risk register match the process components in the flow diagrams and the system information.	1	Non-compliant (non-material)		

ADWG Element	ADWG Framework Component	ADWG Framework Action	Checklist Criterion	Key Priority	Default Non-Compliance Grade	Opportunities For Improvement (OFI)	Recommendations
2-Assessment of the Drinking Water Supply System	2.3-Hazard identification and risk assessment	2.3.b-Identify and document hazards, sources and hazardous events for each component of the water supply system.	2-I: The items in the risk register and/or the Risk Assessment Report address all elements of the system and include any additional items identified in the risk assessment.	1	Non-compliant (non-material)		
	2.3-Hazard identification and risk assessment	2.3.c-Estimate the level of risk for each identified hazard or hazardous event.	2-J: The risk assessment assesses both maximum (the risk with no preventive measures in place) and residual (the risk with preventive measures in place) risks to the drinking water supply system.	1	Non-compliant (material)		
2-Assessment of the Drinking Water Supply System	2.3-Hazard identification and risk assessment	2.3.d-Estimate the level of risk for each identified hazard or hazardous event.	2-K: The residual risk scores reflect the adequacy and effectiveness of the preventive measures in place.	1	Non-compliant (material)		
	2.3-Hazard identification and risk assessment	2.3.e-Evaluate the major sources of uncertainty associated with each hazard or hazardous event and consider actions to reduce uncertainty.	2-L: The risk assessment includes an assessment of uncertainties and identifies actions to reduce uncertainties.	2	Non-compliant (non-material)		
2-Assessment of the Drinking Water Supply System	2.3-Hazard identification and risk assessment	2.3.f-Determine significant risks and document priorities for risk management.	2-M: DWMS references the information used for the risk assessment and the risk assessment outcomes such as in the Risk Assessment Briefing Paper and Risk Assessment Report (or Summary Paper).	1	Non-compliant (non-material)		
	3.2-Critical control points	3.2.a-Assess preventive measures from catchment to consumer to identify critical control points.	3-A: The CCPs included in the DWMS are in use and are appropriate to manage the assessed drinking water quality risks e.g. chlorine disinfection for chlorine sensitive pathogens, filtration for chlorine resistant pathogens.	1	Non-compliant (material)	Ensure the distinction between critical control points and operational control points is clear.	
3-Preventive Measures for Drinking Water Quality Management	3.2-Critical control points	3.2.b-Establish mechanisms for operational control.	3-B: For each CCP, the critical limits and monitoring characteristics and locations align with the recommendations of the ADWG and as agreed by NSW Health and DPE-Water ( <a href="https://www.health.nsw.gov.au/environment/water/Pages/critical-control-points.aspx">https://www.health.nsw.gov.au/environment/water/Pages/critical-control-points.aspx</a> ) and are used to operate the plant. <b>Note:</b> Auditors should check that the critical limit for disinfection reflects the achievement of adequate C.L. and is consistent with the C.L. calculation report.	1	Non-compliant (material)		
	3.2-Critical control points	3.2.c-Document the critical control points, critical limits and target criteria.	3-C: Where CCPs are documented in more than one place (e.g. in the DWMS as well as in SCADA and CCP tables on the wall at the plant), the information is consistent and current.	1	Non-compliant (material)		
3-Preventive Measures for Drinking Water Quality Management	3.2-Critical control points	3.2.c-Document the critical control points, critical limits and target criteria.	3-D: For each CCP, a critical limit has been set and a target criterion recorded.	1	Non-compliant (material)	Set and document adjustment limits for each CCP.	
	3.1-Preventive measures and multiple barriers	3.1.a-Identify existing preventive measures from catchment to consumer for each significant hazard or hazardous event and estimate the residual risk.	3-E: The preventive measures included in the DWMS are in use and are appropriate for each of the identified hazards and hazardous events. <b>Note:</b> Review whole of system preventive measures from catchment to support appropriate implementation. Reviewing the adequacy of the preventive measures for <i>Cryptosporidium</i> given the catchment and risk rating, reviewers should take note of the 2022 NSW Health <i>Cryptosporidium</i> risk letters distributed to all local water utilities in NSW and the risk rating for the particular system under review.	1	Non-compliant (material)		

ADWG Element	ADWG Framework Component	ADWG Framework Action	Checklist Criterion	Key Priority	Default Non-Compliance Grade	Opportunities For Improvement (OFI)	Recommendations
4-Operational Procedures and Process Control	4.1-Operational Procedures	4.1.a-Identify procedures for processes and activities from catchment to consumer. 4.1.b-Document all procedures and compile into an operations manual.	4-A: The processes and procedures for managing CCPs included in the DWMS are appropriate, include the operation, monitoring, maintenance and calibration associated with those measures, and have been followed. <b>Note:</b> Where relevant for the CCP, auditors should check that parameters are monitored continuously online. If they are not, an opportunity for improvement should be provided.	1	Non-compliant (material)	Establish continuous online monitoring of CCP parameters.	
4-Operational Procedures and Process Control	4.2-Operational monitoring	4.2.a-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. 4.2.b-Document monitoring protocols into an operational monitoring plan.	4-B: The processes and procedures for operational monitoring included in the DWMS are appropriate and used. These may take the form of a operational monitoring plan. <b>Note:</b> The operational monitoring should take into account the catchment analysis, risk analysis, treatment process steps and on-line monitoring. Operational parameters should be monitored frequently enough to reveal any failures in a timely manner and should meet the CCF guidance from NSW Health. Ideally monitoring should be online.	1	Non-compliant (material)	Include operating ranges that are appropriate for each parameter being measured and response protocols in the operational monitoring plan. Keep records that confirm the operational monitoring plan was used.	
4-Operational Procedures and Process Control	4.2-Operational monitoring	4.2.a-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. 4.2.b-Document monitoring protocols into an operational monitoring plan.	4-C: If dosed, fluoride monitoring meets the requirements of the NSW Code of Practice for Fluoridation of Public Water Supplies. Daily records are kept of the following: - Volume of water treated. - Quantity of fluoridating agent added over the same time period. - Corresponding average calculated fluoride dose. - Fluoride analysis result from the treated water sample taken during this time period. - Stock of fluoridating agent on hand.	1	Non-compliant (material)		
4-Operational Procedures and Process Control	3.2-Critical control points 4.3-Corrective action	4.3.a-Establish and document procedures for corrective action to control excursions in operational parameters.	4-D: The processes and procedures for managing and reviewing any identified exceptions from normal operation or where a process or barrier is trending out of control (e.g. backwashing of filters, dumping of non-conforming water, repair or reservoir integrity) included in the DWMS are appropriate and have been followed.	1	Non-compliant (material)	Use adjustment limits to indicate whether a process is in control and when actions need to be taken. Keep records that confirm the processes have been followed.	
4-Operational Procedures and Process Control	3.2-Critical control points 10.1-Management of documentation and records	4.3.b-Establish rapid communication systems to deal with unexpected events.	4-E: The process and procedures for recording and reporting CCP exceptions included in the DWMS are appropriate and have been followed. <b>Note:</b> Auditors should consider SCADA records, formal notification records, records of liaison with the local PHU, in the event that an exception has occurred.	1	Non-compliant (material)		
4-Operational Procedures and Process Control	4.4-Equipment capability and maintenance	4.4.a-Ensure that equipment performs adequately and provides sufficient flexibility and process control. 4.4.b-Establish a program for regular maintenance of all equipment, including monitoring equipment.	4-F: The inspection and maintenance program for the water supply system/scheme included in the DWMS is appropriate and followed. <b>Note:</b> This plan should include: - Operational procedures and records for the maintenance of equipment, including the calibration of monitoring equipment; - Schedules and timelines; - Who is responsible, and - Equipment and personnel required. Equipment (including operational monitoring equipment) associated with critical control points must be included as a priority.	1	Non-compliant (material)	Keep records that confirm the program is followed.	

ADWG Element	ADWG Framework Component	ADWG Framework Action	Checklist Criterion	Key Priority	Default Non-Compliance Grade	Opportunities For Improvement (OFI)	Recommendations
4-Operational Procedures and Process Control	4.5-Materials and chemicals	4.5.b-Establish documented procedures for evaluating chemicals, materials and suppliers.	<p>4-G: The process and procedure for managing procurement, purchase, delivery, testing, storage and use of chemicals included in the DWMS is appropriate and followed.</p> <p><b>Note:</b> The procedure should be documented and state that:</p> <ul style="list-style-type: none"> <li>- Chemical deliveries are attended by trained water treatment plant operators.</li> <li>- Requirement for a certificate of analysis to be provided by the supplier at the time of delivery for each batch of chemical supplied and that the chemical satisfies the criteria specified in Chapter 8 of the ADWG, prior to the commencement of unloading.</li> <li>- How to ensure that the correct chemical is being delivered into the appropriate storage.</li> <li>- How the water supplier ensures that the correct concentration has been supplied (e.g. density calculation).</li> <li>- Assurance that chemicals used by the utility are approved, acceptable for addition to use in drinking water and quality assured as per ADWG Chapter 8. Chemical changes are subject to this requirement as well.</li> <li>- Assurance that chemicals are used appropriately.</li> <li>- Fluoride specification, SOP and fluoride measurement as per Code of Practice.</li> </ul>	1	Non-compliant (material)	The process includes use by dates on chemicals, certificates of assurance, SDSs for chemicals in use, responses to any quality assurance exceptions (if needed).	
4-Operational Procedures and Process Control	4.5-Materials and chemicals	4.5.b-Establish documented procedures for evaluating chemicals, materials and suppliers.	<p>4-H: The process for managing procurement, purchase, delivery, testing and storage of equipment included in the DWMS, is appropriate and followed.</p> <p><b>Note:</b> This process should include:</p> <ul style="list-style-type: none"> <li>- List of approved materials and products in accordance with relevant standards (AS/NZS 4020, AS 2070, ATS 5200, AS/NZS 4766, Plumbing Code of Australia, AS/NZS 3500).</li> <li>- Procurement policy/procedures.</li> </ul>	1	Non-compliant (material)	Keep records that confirm the process is followed.	
4-Operational Procedures and Process Control	4.5-Materials and chemicals	4.5.a-Ensure that only approved materials and chemicals are used.	<p>4-I: A water supply approved chemicals/materials register (or record) is maintained that includes:</p> <ul style="list-style-type: none"> <li>- Name (for chemicals, common name and scientific name).</li> <li>- Use.</li> <li>- Quantity stored.</li> <li>- Purchased by.</li> <li>- Purchase method (e.g. Supply Agreement).</li> <li>- Approved supplier.</li> <li>- Specification reference.</li> <li>- Delivery, verification and receipt procedure.</li> <li>- Storage method.</li> <li>- Storage life (e.g. use by date or replacement date from opening according to manufacturer's guidance)</li> </ul>	1	Non-compliant (non-material)	Keep records that confirms the chemical/materials register is maintained. Include in the register: use by dates on chemicals, certificates of assurance, SDSs for chemicals in use, responses to any quality assurance exceptions (if needed).	
4-Operational Procedures and Process Control	4.2-Operational monitoring 5.1-Drinking water quality monitoring 5.3-Short-term evaluation of results 11.1-Long-term evaluation of results 12.1-Review by senior executive	4.2.a-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.	<p>4-J: The process for review of the data collected through the operational monitoring plan included in the DWMS is appropriate and followed.</p>	1	Non-compliant (non-material)	Assign a person responsible for undertaking the review. Responsible person signs off on review and sign off is recorded and documented.	
5-Verification of Drinking Water Quality	5.1-Drinking water quality monitoring 5.4-Corrective action	5.1.a-Determine the characteristics to be monitored in the distribution system and in water as supplied to the consumer. 5.1.b-Establish and document a sampling plan for each characteristic, including the location and frequency of sampling. 5.1.c-Ensure monitoring data are representative and reliable.	<p>5-A: The verification monitoring plan included in the DWMS meets at a minimum the NSW Health Drinking Water Monitoring Program requirements, includes recording and responding to consumer complaints, and is followed.</p> <p><b>Note:</b> The NSW Health Drinking Water Monitoring Program is the minimum and additional monitoring may be required. The Reviewer should check that at least the microbiological and chemical allocations are in place. If a utility's monitoring is less than the Drinking Water Monitoring Program requirements there should be evidence that notification has been made to NSW Health. The sampling frequency report should be run in the NSW Drinking Water Database; any deficiencies among the samples collected, as a % of expected samples, should be noted.</p> <p>The Reviewer should check that monitoring of customer complaints includes adequate parameters for picking up water quality issues including turbidity, colour, and objectionable taste and odour.</p>	1	Non-compliant (material)	Any additional monitoring that the utility should consider can be noted as an opportunity for improvement. This could include monitoring for pesticides or other characteristics not included in the NSW Drinking Water Monitoring Program.	

ADWG Element	ADWG Framework Component	ADWG Framework Action	Checklist Criterion	Key Priority	Default Non-Compliance Grade	Opportunities For Improvement (OFI)	Recommendations
5-Verification of Drinking Water Quality	5.1-Drinking water quality monitoring 5.2-Consumer satisfaction 5.3-Short-term evaluation of results 12.1-Review by senior executive	5.3.a-Establish procedures for the daily review of drinking water quality monitoring data and consumer satisfaction.  5.3.b-Develop reporting mechanisms internally and externally, where required. 10.2.a-Establish procedures for effective internal and external reporting. 10.2.b-Produce an annual report to be made available to consumers, regulatory authorities and stakeholders.	5-B: The process for review of the results from the NSW Health Drinking Water Monitoring Program (stored in the NSW Drinking Water Database) and other verification monitoring included in the DWMS is appropriate, and followed.  <b>Note:</b> Responsibility for review of verification monitoring results should be documented in the DWMS (including for NSW Health Drinking Water Monitoring Program results, Fluoride Code obligations and consumer complaints).	1	Non-compliant (material)	Keep records to confirm that the process for review was followed.	
	2.2-Assessment of water quality data 5.3-Short-term evaluation of results 11.1-Long-term evaluation of results 12.1-Review by senior executive		5-C:The process for communication of operational and verification monitoring result reviews to management (e.g. monthly reports) documented in the DWMS is appropriate and followed.  <b>Note:</b> Management includes Council (elected representatives) where applicable.	1	Non-compliant (material)	Keep records to confirm the process is followed.	
5-Verification of Drinking Water Quality	10.2-Reporting 5.3-Short-term evaluation of results	5.3.b-Develop reporting mechanisms internally, and externally, where required. 10.2.a-Establish procedures for effective internal and external reporting. 11.1.2.b-Document and report results. 11.2.b-Document and communicate Audit results.	5-D: The process for reporting monitoring (operational and verification) results and reviews to external parties is appropriate, documented in the DWMS and followed. This includes immediate notification to PHU of any incident affecting drinking water safety, including CCP exceptions, reservoir contamination, fluoride exceptions and results indicating possible contamination.  <b>Note:</b> The process should include reporting of at least the following information: - Drinking WQ management aspects - Drinking WQ compliance - NSW Best Practice Framework: IWCM Implementation - Categorisation of water supply public health incidents - Water quality results and statistical summaries - Fluoride reporting and communication - Implementation of recommendations by DPE-Water - Annual reviews and External Audit outcomes to NSW Health.	1	Non-compliant (material)	Keep records to confirm that the process for review was followed.	
	5.1-Drinking water quality monitoring 6.1-Communication 6.2-Incident and emergency response protocols	5.2.a-Establish a consumer complaint and response program, including appropriate training of employees. 5.4.a-Establish and document procedures for corrective action in response to non-conformance or consumer feedback.	5-E: The procedures for responding to verification monitoring results including consumer complaints included in the DWMS are appropriate and followed.	1	Non-compliant (material)	Keep records (e.g. incident management records, CRM system and preventive/reactive maintenance records) to confirm that the process for responding to verification monitoring was followed.	
6-Incidents and Emergencies	6.2-Incident and emergency response protocols 10.2-Reporting	6.2.a-Define potential incidents and emergencies and document procedures and response plans with the involvement of relevant agencies. 6.2.c-Investigate any incidents or emergencies and revise protocols as necessary.	6-A: The process for notifying NSW Health of drinking water quality incidents and emergencies included in the DWMS is appropriate and followed.  <b>Note:</b> This process should include: - Reference to the current versions of the NSW Health Response Protocols - Documentation of how the NSW Health Response Protocols have been tailored for the water utility and will be used.	1	Non-compliant (material)	Keep records that confirm the process and/or procedures for notification are followed.	
	6.1-Communication 6.2-Incident and emergency response protocols	6.2.a-Define potential incidents and emergencies and document procedures and response plans with the involvement of relevant agencies. 6.2.c-Investigate any incidents or emergencies and revise protocols as necessary.	6-B: The process for managing drinking water quality incidents and emergencies included in the DWMS is appropriate and followed. The process must clearly and appropriately describe water quality incident and emergency types and how they will be managed.  <b>Note:</b> This requirement is closely linked to 6-A, as the response protocols provide definitions of some of the high priority incident types.	1	Non-compliant (material)	Keep records that confirm the process and/or procedures for incident and emergency management are followed.	

ADWG Element	ADWG Framework Component	ADWG Framework Action	Checklist Criterion	Key Priority	Default Non-Compliance Grade	Opportunities For Improvement (OFI)	Recommendations
6-Incidents and Emergencies	6.1-Communication 6.2-Incident and emergency response protocols	6.2.a-Define potential incidents and emergencies and document procedures and response plans with the involvement of relevant agencies.	6-C: The procedures to be followed during an incident or emergency included in the DWMS are appropriate and followed.	1	Non-compliant (material)	Keep records that confirm the procedures were followed.	
	6.4-Communication 6.2-Incident and emergency response protocols 3.4-Corrective Action	5.4.b-Establish rapid communication systems to deal with unexpected events. 6.1.a-Define communication protocols with the involvement of relevant agencies and prepare a contact list of key people, agencies and businesses.	6-D: The communication procedures for managing drinking water quality incidents and emergencies included in the DWMS are followed and clearly specify: - Internal communication procedures - External communication procedures that include when and how incident notification to key agencies should take place and which personnel are authorised to communicate with these agencies. <b>Note:</b> This requirement is closely linked to 6-A, as the response protocols provide guidance on communication related to incidents. Communication pathways in the utility will also be described on CCP SOPs.	1	Non-compliant (material)	Keep records that confirm the communication procedures were followed (e.g. formal incident notification records as well as records of communication with the local PHU).	
6-Incidents and Emergencies	6.1-Communication	6.1.a-Define communication protocols with the involvement of relevant agencies and prepare a contact list of key people, agencies and businesses.	6-E: The contact details included in the DWMS for drinking water quality incidents and emergencies, include at least: - Emergency services (police, fire and rescue, ambulance, RFS/local brigade, SES) - NSW Health PHU - Other organisations (NSW Health laboratories and other laboratories, DPE/Water (including Trade and Investment-Agriculture), EPA, electricity utility control centre, Safe Work NSW, Local Land Services) - Media (local newspaper, TV and radio stations) - Telecommunication service provider control room - Back up internal staff (media, executive, managers, etc) - Details that consider the communication needs of vulnerable people and those with special needs.	1	Non-compliant (material)		
	6.2-Incident and emergency response protocols 10.1-Management of documentation and records	10.1.b-Develop a document control system to ensure current versions are in use. 10.1.d-Periodically review documentation and revise as necessary.	6-F: The procedures for the control of document versions relating to the management of drinking water quality incidents and emergencies included in DWMS are appropriate and followed. <b>Note:</b> Specifically, contact details documentation should be controlled, current, have a review date and responsibility for review clearly documented either on the document or file.	1	Non-compliant (material)		
6-Incidents and Emergencies	6.1-Communication 6.2-Incident and emergency response protocols	6.1.a-Define communication protocols with the involvement of relevant agencies and prepare a contact list of key people, agencies and businesses.	6-G: The current incident and emergency contact details are available at the location documented in the DWMS.	1	Non-compliant (non-material)		
	5.4-Corrective action 6.2-Incident and emergency response protocols 6.1-Communication	6.1.b-Develop a public and media communications strategy.	6-H: The process for communication of drinking water quality incidents and emergencies to the community included in the DWMS is appropriate and followed. <b>Note:</b> This process can include: - A formal media communication policy - Links to NSW Health's boil water alert templates or a water utility specific boil water alert template based on the NSW Health versions.	1	Non-compliant (non-material)	Keep records that confirm this communication process was followed.	
7-Employee Awareness and Training	7.1-Employee awareness and involvement 7.2-Employee training	7.1.a-Develop mechanisms and communication procedures to increase employees' awareness and participation in drinking water quality management. 7.2.b-Identify training need and ensure resources are available to support training programs. 6.2.b-Train employees and regularly test emergency response plans.	7-A: The process for communicating preventive measures and CCPs (including any changes) to staff included in the DWMS is appropriate and followed. <b>Note:</b> This process should include training in the importance of the preventive measures and CCPs used to manage the drinking water supply system, including standard operating procedures and incident response protocols. Customer service staff should be included in incident management protocol training. The process may also include toolbox talks and water quality incident scenario training.	1	Non-compliant (material)	Keep records that confirm the process has been followed and training has occurred.	



ADWG Element	ADWG Framework Component	ADWG Framework Action	Checklist Criterion	Key Priority	Default Non-Compliance Grade	Opportunities For Improvement (OFI)	Recommendations
7-Employee Awareness and Training	3.2-Critical control points 6.1-Communication 6.2-Incident and emergency response protocols 7.1-Employee awareness and involvement 7.2-Employee training	7.1.a-Develop mechanisms and communication procedures to increase employees' awareness of and participation in drinking water quality management. 7.1.a-Develop mechanisms and communication procedures to increase employees' awareness of and participation in drinking water quality management. 7.2.a-Ensure that employees, including contractors, maintain the appropriate experience and qualifications.	7-B: SOPs for managing CCPs are easily accessible to operational staff and displayed at the CCP location or control room.  7-C: The training for employees about drinking water quality issues (including awareness training) included in the DWMS is appropriate and is provided. <b>Note:</b> Senior managers should be included in awareness training.	1	Non-compliant (material)		
	7.1-Employee awareness and involvement 7.2-Employee training	7.2.b-Identify training need and ensure resources are available to support training programs. 7.2.a-Ensure that employees, including contractors, maintain the appropriate experience and qualifications. 7.2.c-Document training and maintain records of all employee training.	7-D: The process for managing and reviewing the training and skills currency of employees is appropriate and followed.  7-E: Records confirm that all water treatment plant operators are suitably qualified. <b>Note:</b> The Reviewer should check the qualification for appropriateness if an alternative qualification is obtained (i.e. other than the DPE-Water course).	1	Non-compliant (non-material)	Keep records that confirm the process is followed.	
7-Employee Awareness and Training	7.1-Employee awareness and involvement 7.2-Employee training	7.1.a-Develop mechanisms and communication procedures to increase employees' awareness of and participation in drinking water quality management. 7.2.b-Identify training need and ensure resources are available to support training programs.	7-F: The process for how awareness of employees and contractors about water quality issues is improved and maintained included in the DWMS is appropriate and followed.	2	Non-compliant (non-material)	Keep records that confirm the process is followed.	
	1.3-Engaging stakeholders 8.1-Community consultation 8.2-Communication	8.1.a-Assess requirements for effective community involvement. 1.3-b-Develop appropriate mechanisms and documentation for stakeholder commitment and involvement.  8.1.b-Develop a comprehensive strategy for community consultation. 8.2.a-Develop an active two-way communication program to inform consumers and promote awareness of drinking water quality issues. 1.3.a-Identify all stakeholders who could affect, or be affected by, decisions or activities of the drinking water supplier.	8-A: The processes for engaging with the community and taking the community's and consumers' objectives into account when managing the drinking water supply system included in the DWMS is appropriate and followed. <b>Note:</b> The process for setting consumer objectives should consider levels of service, costs, existing water quality problems and the options for protection and improvement of drinking water quality.	3	Non-compliant (material)	Keep records that confirm the process is followed.	
8-Community Involvement and Awareness	1.3-Engaging stakeholders 8.1-Community consultation 8.2-Communication	8.1.b-Develop a comprehensive strategy for community consultation. 8.2.a-Develop an active two-way communication program to inform consumers and promote awareness of drinking water quality issues. 1.3.a-Identify all stakeholders who could affect, or be affected by, decisions or activities of the drinking water supplier.	8-B: The processes for engaging and raising awareness in the local community included in the DWMS are appropriate and followed. <b>Note:</b> This process should include: - Identification of community stakeholders - Methods of consulting with the community including via social media and education awareness campaigns, through development of the Strategic Business Plan, the WCM Strategy and the items in Table 3-10 (NSW Guidelines, section 3.6).	3	Non-compliant (non-material)		
	9.1- Investigative studies and research monitoring 12.2-Drinking water quality management improvement plan	9.1.a-Establish programs to increase understanding of the water supply system.	9-A: The risk assessment outcomes have been used in developing actions to investigate water quality or improve knowledge of the system.  9-B: All water quality studies are listed in the DWMS.	3	Non-compliant (non-material)	Utilities can request special project allocations of analyses from NSW Health laboratories for investigations.	
9-Research and Development	9.1- Investigative studies and research monitoring 12.2-Drinking water quality management improvement plan	9.1.a-Establish programs to increase understanding of the water supply system.		3	Non-compliant (non-material)	Include references to where water quality study information is kept.	

ADWG Element	ADWG Framework Component	ADWG Framework Action	Checklist Criterion	Key Priority	Default Non-Compliance Grade	Opportunities For Improvement (OFI)	Recommendations
9-Research and Development	9-1-Investigative studies and research monitoring 12-2-Drinking water quality management improvement plan	9.1.a-Establish programs to increase understanding of the water supply system.	9-C: There is evidence of NSW Health and DPE Water consultation in the planning of the water quality studies listed. <b>Note:</b> Evidence may include minutes of meetings, attendance at risk assessment workshop, correspondence records.	3	Non-compliant (non-material)		
		9.2-Validate processes and procedures to ensure that they are effective in controlling hazards.	9-D: The procedures for validating equipment and treatment processes included in the DWMS are appropriate and were followed. <b>Note:</b> This may include historic s60 (of the Local Government Act) approval and confirmation of C.I. calculation.	2	Non-compliant (non-material)		
		9.3-Design of equipment	9-E: If water treatment works are to be constructed or modified, s60 (of the Local Government Act) approval has been sought and received from DPE-Water.	3	Non-compliant (non-material)		
9-Research and Development	4-4-Equipment capability and maintenance 9-2-Validation of processes 9-3-Design of equipment	9.2-b-Revalidate processes periodically or when variation in conditions occur.	9-F: Any s61 (of the Local Government Act) consecutive actions issued by DPE-Water have been carried out after consultation with the PHU and DPE-Water.	3	Non-compliant (non-material)	Keep records that confirm consultation.	
		9.3-Design of equipment	9-G: Calculation of primary disinfection (e.g. C.I. calculation report) has been documented, is accurate and is included in the DWMS.	1	Non-compliant (non-material)		
10-Documentation and Reporting	10-1-Management of documentation and records	9.1-Investigative studies and research monitoring 10-1-Management of documentation and records	10-A: The record keeping systems or procedures included in the DWMS are appropriate and followed. <b>Note:</b> The systems or procedures cover requirements of: - State Records Act 1998 (NSW) - NSW Code of Practice for Fluoridation of Public Water Supplies - NSW Performance Monitoring System - Organisation's governance policy. Records should: - Be accessible. - Include those required in Table 3-12 of the NSW Guidelines. - Indicate who recorded the information e.g. operator initials for daily bench tests.	3	Non-compliant (non-material)		
		10.1-b-Develop a document control system to ensure current versions are in use.	10-B: The procedures for document version control included in the DWMS are appropriate and followed.	3	Non-compliant (non-material)		
11-Evaluation and Audit	11-1-Long-term evaluation of results	11.1.a-Collect and evaluate long-term data to assess performance and identify problems.	11-A: The processes for long term evaluation of drinking water quality data included and recorded in the DWMS are appropriate and followed. <b>Note:</b> The processes must include (at a minimum), a review of: - Performance of CCPs, - Water quality data (raw, treated and distribution water quality including the NSW Drinking Water Database), and - levels of service (including customer complaints)	3	Non-compliant (non-material)		
		2.10-P-Periodically review the water supply system analysis	11-B: The internal and external review (audit) schedule included in the DWMS is appropriate and met. <b>Note:</b> The schedule (at a minimum), include: - An annual review of the DWMS (reported to NSW Health). - A complete review of the DWMS every 4 years in line with the review of the SBP or, if system changes or a risk assessment indicate a comprehensive review is required. - A frequency for external audit of the DWMS determined in consultation with the PHU.	3	Non-compliant (non-material)		

ADWG Element	ADWG Framework Component	ADWG Framework Action	Checklist Criterion	Key Priority	Default Non-Compliance Grade	Opportunities For Improvement (OFI)	Recommendations
11-Evaluation and Audit	11.1-Long term evaluation of results 11.2-Audit of drinking water quality management 12.1-Review by senior executive	11.2.a-Establish processes for internal and external audits.	11-C: The processes for internal and external reviews (audits) included in the DWMS are appropriate and followed. <b>Note:</b> These processes should include: - Application of the NSW Guideline for Review and Audit of Drinking Water Management Systems. - Maintaining records of review (e.g. annual review reports, audit reports, improvement plan actions).	3	Non-compliant (non-material)		
	10.1-Management of documentation and records 11.1-Long-term evaluation of results 11.2-Audit of drinking water quality management 2.3-Hazard identification and risk assessment 12.1-Review by senior executive	12.1.a-Senior executive review of the effectiveness of the management system. 12.1.b-Evaluate the need for change. 2.3.i-Periodically review and update the hazard identification and risk assessment to incorporate any changes.	12-A: The process for updating the DWMS included in the DWMS is appropriate and followed. <b>Note:</b> This process should occur when: - Significant changes to the water supply system are proposed - Internal or external review (audit) findings are addressed - After a complete DWMS review conducted in line with the SBP review  The process should include: - Review and update of the relevant area of the DWMS (e.g. a proposed operating rule change would require a risk assessment and CCP review and changes reflected in the DWMS). - Submission of the reviewed DWMS to the PHU.	1	Non-compliant (material)		
12-Review and Continual Improvement	12.2-Drinking water quality management improvement plan	12.2.a-Develop a drinking water quality management improvement plan.	12-B: Any actions required to improve drinking water quality are included in the DWMS in a drinking water quality improvement plan. <b>Note:</b> Actions should be identified from a range of sources such as: DWMS - Risk Assessment - Continuous Improvement System - s61 (of the Local Government Act) directions - Internal and external reviews (audits) - Annual Action Plan to Council Following review of TBL Performance Report and Asset Management Plan.	1	Non-compliant (material)		
	12.2-Drinking water quality management improvement plan	12.2.b-Ensure that the plan is communicated and implemented, and that improvements are monitored for effectiveness.	12-C: For each action in the drinking water quality improvement plan, the following are recorded: - Who is responsible - Date for completion - Priority - Progress reporting. 12.D: Progress against the Improvement Plan is reviewed on a monthly basis. <b>Note:</b> The Reviewer should check the Improvement Plan for any outstanding high priority items and record the outstanding items. Reviewers should also note when no new actions have been added to the Improvement Plan for over a year.	1	Non-compliant (non-material)	Consider including the following as an OFI, if not already part of the improvement plan: - Date of addition - Origin of addition (e.g. risk assessment).	
12-Review and Continual Improvement	12.2-Drinking water quality management improvement plan	12.2.b-Ensure that the plan is communicated and implemented, and that improvements are monitored for effectiveness.	12-E: Actions are reviewed as part of the budgeting and strategic planning process.	1	Non-compliant (non-material)	Keep records to confirm that actions are reviewed as part of the budgeting and strategic planning process.	
	12.2-Drinking water quality management improvement plan	12.2.b-Ensure that the plan is communicated and implemented, and that improvements are monitored for effectiveness.	12-E: Actions are reviewed as part of the budgeting and strategic planning process.	1	Non-compliant (non-material)	Keep records to confirm that actions are reviewed as part of the budgeting and strategic planning process.	



# Report

Reviewers should write a succinct report including a summary based on the template below. The report should also include a detailed section, based on the findings, and assessment, against checklist criteria, in Appendix A.

Assessment date: \_\_\_\_\_ Drinking water reviewer/s: \_\_\_\_\_

Utility assessed: \_\_\_\_\_ System/s assessed: \_\_\_\_\_

Auditable area	Summary of Positive Findings or Risk Identified	Opportunities for Improvement	Recommendations and Risk Status
Element 1 - Commitment to Drinking Water Quality			
Element 2 - Assessment of the Drinking Water Supply System			
Element 3 - Preventive Measures for Drinking Water Quality Management			
Element 4 - Operational Procedures and Process Control			
Element 5 - Verification of Drinking Water Quality			
Element 6 - Incidents and Emergencies			
Element 7 - Employee Awareness and Training			
Element 8 - Community Involvement and Awareness			
Element 9 - Research and Development			
Element 10 - Documentation and Reporting			
Element 11 - Evaluation and Audit			
Element 12 - Review and Continual Improvement			

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

NSW Health
APPENDIX C

## Application for NSW Health approval to review and audit

Drinking water management systems

Water utilities need to engage a NSW Health approved reviewer to complete external audits of drinking water management systems. Reviewers seeking NSW Health approval should complete the following form. Further information about the criteria for approval to conduct audits is provided in the *NSW Guideline for Review and Audit of Drinking Water Management Systems*.

1. APPLICANT DETAILS

Family name: \_\_\_\_\_ Given name: \_\_\_\_\_  
 Business name: \_\_\_\_\_ Business address: \_\_\_\_\_  
 \_\_\_\_\_  
 Postal address (if different from business address): \_\_\_\_\_  
 \_\_\_\_\_  
 Company address (head office). This may be the company's registered address: \_\_\_\_\_  
 \_\_\_\_\_  
 Phone (business hours): \_\_\_\_\_ Mobile: \_\_\_\_\_  
 Fax: \_\_\_\_\_ ABN or ACN: \_\_\_\_\_  
 Email: \_\_\_\_\_

2. QUALIFICATIONS, PROFESSIONAL CERTIFICATIONS, REGISTRATIONS AND LICENCES

Yes  No Exemplar Global Water Quality Management System certification?  
 Yes  No Independent Pricing and Regulatory Tribunal Audit Panel member?  
 Yes  No If no formal auditor qualification-other appropriate background and experience including:

- Relevant qualifications and experience in the water industry
- Understanding of the Framework for the Management of Drinking Water Quality
- Understanding of the NSW Guidelines for Drinking Water Management Systems

Please provide detail and evidence of qualifications (attach copies of original certificates, memberships and qualifications).

Institution and year attained: \_\_\_\_\_  
 Institution and year attained: \_\_\_\_\_  
 Institution and year attained: \_\_\_\_\_  
 Institution and year attained: \_\_\_\_\_

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1/2

External audits must be conducted by an NSW Health approved reviewer. The application for NSW Health approval to review and audit Drinking Water Management Systems can be completed online. The link to complete an online version of this form is <https://forms.office.com/r/dfdR7a5fqC> or downloaded [here](#) and submitted to [hssg-waterqual@health.nsw.gov.au](mailto:hssg-waterqual@health.nsw.gov.au).

Water utilities should notify the PHU of the intent to conduct an external audit and prior to engagement submit the preferred DWMS reviewer. The notification form can be downloaded [here](#) and submitted to the local [Public Health Unit](#).

NSW Health
APPENDIX C

## Drinking Water Management System-Review and Audit

Notice of external audit of drinking water management system

Water utilities need to engage an NSW Health approved reviewer to complete external audits of drinking water management systems. Water utilities engaging a reviewer to conduct an external audit of their drinking water management system should complete the following form with their preferred reviewer. Further information about external audits is provided in the *NSW Guideline for Review and Audit of Drinking Water Management Systems*.

NOTICE:

This notice relates to the external audit of the drinking water management system for:  
 \_\_\_\_\_  
 \_\_\_\_\_

WATER UTILITY DETAILS:

Family name: \_\_\_\_\_ Given name: \_\_\_\_\_  
 Business name: \_\_\_\_\_ Business address: \_\_\_\_\_  
 \_\_\_\_\_  
 Postal address (if different from business address): \_\_\_\_\_  
 \_\_\_\_\_  
 Company address (head office). This may be the company's registered address: \_\_\_\_\_  
 \_\_\_\_\_  
 Phone (business hours): \_\_\_\_\_ Mobile: \_\_\_\_\_  
 Fax: \_\_\_\_\_ ABN or ACN: \_\_\_\_\_  
 Email: \_\_\_\_\_

DWMS REVIEWER DETAILS:

Family name: \_\_\_\_\_ Given name: \_\_\_\_\_  
 Business name: \_\_\_\_\_ Business address: \_\_\_\_\_  
 \_\_\_\_\_  
 Postal address (if different from business address): \_\_\_\_\_  
 \_\_\_\_\_  
 Company address (head office). This may be the company's registered address: \_\_\_\_\_  
 \_\_\_\_\_

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